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Financing Educational Development:

Proceedings of
an International Seminar
held in
Mont Sainte-Marie, Canada

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Financing Educational Development

Proceedings of an International Seminar held in Mont Sainte Marie, Canada, 19–21 May 1982

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and the

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Résumé

Du 19 au 21 mai 1982, les représentants de plus d'une douzaine d'organismes qui se consacrent au financement de la recherche et du développement éducationnels dans les pays en développement, se sont réunis au Mont-Sainte-Marie (Canada). Cette réunion, la plus récente d'une série échelonnée sur dix ans, portait sur le financement du développement éducationnel; les investissements en éducation dans le monde, les difficultés que les gouvernements nationaux et les organismes donateurs rencontrent dans l'augmentation des ressources affectées à ce domaine et l'expérimentation d'une gamme d'innovations éducationnelles présumées rentables. Plusieurs communications présentées à cette réunion avaient été commandées à des chercheurs qui étudient les questions intéressant les investissements dans l'éducation. Cette monographie contient tous les exposés présentés à cette réunion; suivent le résumé du compte rendu de la réunion et des débats sur le thème à l'étude des décisionnaires du Tiers Monde qui y ont participé.

Resumen

Delegados de más de una docena de organismos donantes involucrados en la financiación de la investigación y el desarrollo educativos en el mundo en desarrollo se reunieron en Mont Sainte Marie, Canada, del 19 al 21 de mayo de 1982. Esta reunión, la más reciente de una serie que se ha prolongado a lo largo de una década, se centró en el tema de la financiación del desarrollo educativo: el estado de la inversión en educación en el mundo, las limitaciones que enfrentan tanto gobiernos como organismos donantes para el otorgamiento de mayores fondos con destino a la educación y la experiencia con una serie de innovaciones educativas supuestamente costo-efectivas. Para esta reunión se comisionaron varios estudios sobre aspectos de la inversión educativa a expertos en el tema. Tales trabajos aparecen en esta monografía, acompañados de una reseña general de las exposiciones y de los comentarios que sobre el tema hicieron los formuladores de política del mundo en desarrollo participantes en la reunión.

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Foreword

For over a decade, representatives of donor agencies involved in the funding of educational development and research have met periodically to discuss and review their own agencies' activities and more general problems facing educational systems in the developing world. On two occasions, such meetings have included the heads of agencies in broad discussions of issues and policies related to educational development.

These meetings have evolved over several years to include a larger number of agencies from both Europe and North America, a focus on particular issues of current importance, and more regular participation of researchers and policymakers from developing nations.

Following a meeting of the group in Berlin in 1981, a decision was made to hold the next meeting in Canada with a focus on the theme of the financing of educational development: the state of investment in education around the world, constraints to the provision of more funds for education facing both national governments and donor agencies, and experience with a variety of supposedly cost-effective educational innovations.

The 1982 session of education donor agency representatives was held at Mont Sainte Marie, Canada from 19 to 21 May. Attending were representatives of some sixteen agencies, the authors of several papers commissioned for the meeting, and four researchers and policymakers engaged in the problems of educational finance in the developing world. Mr Marcel Massé, President of the Canadian International Development Agency (CIDA), addressed the participants on the session's opening day.

This monograph contains the texts of the papers presented at the meeting, comments on the theme prepared by the developing-nation representatives, and an overview of the meeting by one of its participants. It is the hope of CIDA and IDRC, coorganizers of this meeting, that the contents of this book will contribute to the international debate on the critical issues of financing of educational development.

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Introduction

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The two-and-a-half day conference in the Gatineau Hills served a very useful purpose. It brought together an international group with widely disparate views of the contemporary problem of financing education for development. The group included senior representatives of national and international agencies that supported education in Third World countries, educational researchers from several academic centres, and a number of senior educational authorities from Third World countries. It would be too much to say that consensus was reached on the major issues discussed, but the very divergence of approach and opinion had the effect of lending sharper definition to the problems. In the course of the discussion bridges were built. Among the most competent bridge-builders were highly informed Third World representatives, some of whom happened also to be senior officials of international agencies.

A number of research papers reported on the effects of world-wide economic difficulties on the support of educational activities and institutions. In a number of developed countries, the financial crisis faced by governments was being met to some extent by a cutback in social expenditures including support for education. In two papers, the increase in military expenditures was noted as an acerbating factor. But because the Third World was suffering from similar economic difficulties finding expression in curtailed trade, inflationary costs, and increased unemployment, the financing of education was also more difficult. The effect of the recession in developed countries was not only to curtail domestic educational expenditures but to cut back on international assistance programs, including those directed toward education.

Certain papers went into the qualitative aspects of these new constraints on international support for education. In regard to bilateral assistance programs, one might expect to see aid governed more by political considerations and a more interventionist policy in the application of aid funds. In the case of education, one might anticipate an instrumentalist value judgment: projects would receive support if they could be clearly shown to have a direct bearing on economic growth and productivity. As to international agency programs, one paper suggested a strong veering away from support of agencies within the United Nations family. This position, however, did not appear to be fully supported by the current level of activity of UN Specialized Agencies. It is true that the United Nations Development Programme (UNDP) has suffered a serious cutback in recent years, as has the World Bank, but proportionately no more than bilateral programs. In a number of cases, including Canada, one of the major contributors, the multilateral programs show no sign of reduction. In certain of the newer international programs in such fields as food production, health and population — all of which have important educational aspects — there has been a marked increase in developed-country support. In general, however, taking into account the acute needs to be met, the support from the countries of the industrialized North has fallen far short of what is required and the current world recession has undoubtedly been one important factor.

Balancing this pessimistic appraisal, the conference had before it reports that suggested that despite the prevalent economic difficulties, developing countries in general were pressing ahead with their educational programs, according them high priority in public expenditures. In some cases, education accounts for as much as 40% of the national budget. Moreover, in the case of education, as in other areas of national development, external assistance constitutes only a small proportion of total costs. One paper estimated for instance, that while in certain cases outside support might be considered essential, overall external support from all sources amounted to only 9% of the Third World's educational budget. These findings led to another more fundamental conclusion, namely, that the development of education in Third World countries was not primarily a matter of international concern, focused in the so-called "donor agencies," but was a matter of primary

concern for the governments and peoples of the developing countries. This conclusion led to a reexamination of the nature of education and the nature of development.

The original model of development for the primitive agricultural societies of Asia, Africa, and Latin America was that of the industrial civilization of Europe and North America. To assist social and economic development, the industrial nations of the North could directly, or through international organizations, effect a transfer of industrial capital and know-how to the countries of the South. The development of an educational system replicating that of the developed countries would provide an effective channel for the transfer of relevant knowledge and at the same time train those who were needed to administer the modern industrial system. Development progress could be measured by the annual rate of economic growth and by statistical indications of the extension of educational facilities and the increase in the educated population.

The record of the 50s and 60s seemed to support the original optimistic predictions. Gross national products increased. Schools and universities multiplied. Expatriate teachers manned the new schools while indigenous teachers were being trained abroad. Literacy rates increased and expanded school populations strained the capacity of the new accommodation. Education was seen as an important motor of development. Moreover, studies showed that rise in education could be equated with rise in income. Some, although not all, went so far as to suggest that a more equitable distribution of educational advantages would result in a more equitable distribution of income.

The pattern of development in Third World countries did not, unfortunately, fulfill these optimistic predictions. In a number of cases, the target rate of economic growth was achieved, but the gains were concentrated in the modernizing sector leaving the majority of the population, mainly in the rural areas but also in the city slums, in the grip of poverty. The opportunities for education were for the most part restricted to the modern urban centres. Alongside of these domestic constraints on development and education were global constraints arising out of a badly skewed international order, the power structure of which dictated a thoroughly inequitable distribution of the world's resources. Beginning in the 1960s and reaching peak fervor in the mid-1970s we see a rising demand from governments and people of the developing countries for greater justice in the ordering of the economy both internationally between North and South, the rich and the poor, and within national societies. The validity of such claims found endorsement in two reports sponsored by the World Bank that framed the last decade: the Pearson Report of 1969 and the Brandt Report of 1980.

One important result of these revolutionary changes in approach to international development, which historians will regard as a culminating stage in the process of decolonization, was the abandonment of the western model of industrialization and the assumption of responsibility by Third World nations for directing the course of their development, taking into account the basic needs of their people, their material and human resources, and their cultural heritage and goals. The emergent societies have followed many patterns, politically from fully socialized regimes to military dictatorships committed to the defence of a privileged establishment, economically from modernized industrial development to agricultural advancement to ensure adequate food for their population as well as increased revenue from exports. But central in development policy has been a determination to break clear of dependency on the developed world and strengthen self-reliance, independently and in collective association with other Third World nations.

The change in focus in development goals naturally found its counterpart in changes in the goals of education. Once the model of western industrial society came to be regarded as less than adequate for all nations and peoples in the Third World, the educational system closely linked to it came to be called into question and other concepts of the role of education asserted themselves, and they were many. This is not to say that the formal system of education that had been borrowed from the developed countries was abandoned. It continued to serve the needs of the members of the modern sector, mainly concentrated in the cities, partly through a symbolic reinforcement of status, but also through provision of the knowledge that would ensure upward vocational or professional mobility. But it began to undergo significant change, in curriculum and methodology, and was expanded into areas previously unserved and supplemented by innovations that themselves represented new goals. In the process, education came to be freed from its narrowly functional role of providing the means for improved economic status. The broad range of meanings of education and the means by which its diverse goals could be realized occupied much of the discussion at the conference.

As might be expected, one of the most important shifts of emphasis was from the urban to the rural community. This represents a long overdue effort

to redress distributive injustice, meet basic human needs, and make a serious contribution to national unity and, in consequence, strengthen self-reliance. Active campaigns against illiteracy were reported from many quarters, remarkably successful in Ethiopia and Nicaragua, countries that have discarded an ancient and a modern form of feudalism, but also in India and other countries committed to a more gradual process of social change. The United Nations Educational, Scientific and Cultural Organization (UNESCO) reported a 10% increase of budgetary support to such programs. A number of reports noted practical assistance in the shape of paper, books, and support for publishing facilities. Associated with the literacy campaign is an increased emphasis on the extension of primary education calling for an expansion and improvement of school facilities and an increase in teacher training. But alongside of and complementary to improvements in formal education there have been notable advances in nonformal education in rural areas. One paper before the conference described community-based projects combining on-the-job training in agriculture and other vocations with broader educational activities with practical examples from Indonesia, Sri Lanka, India, Kenya, Botswana, and several Latin American countries. This development is reflected in reports from the International Labour Office (ILO) that indicate a movement away from industry-oriented vocational training centres to more directly relevant training programs closely related to actual employment. One important aspect of this new emphasis is increased attention to vocational training for women. Closely linked to such efforts to promote development in the rural community is the new emphasis on primary health care, promoted by the World Health Organization (WHO), which links basic education in health to practical measures to ensure better sanitation, pure water, and improved nutrition, all of which is tied in with a training and health care program involving medical professionals at the district and national level.

This great variety of formal and nonformal educational programs with a primary focus on the majority of the population in the rural area offers multiple opportunities for support through bilateral and international programs. Some of the most significant assistance is now being provided by national and international nongovernmental organizations that in many instances can establish direct cooperative relationships with the community-based effort. Moreover, a number of national agencies are providing their support for educational programs through nongovernmental organizations.

The determination to expand education despite financial restraints has led to many innovative programs that will achieve the objective without necessarily calling for an enlarged base of school facilities and trained teachers. One effective means has been the utilization of radio and television to embrace a larger learning constituency. Of the two, radio has been more successful partly because it is cheaper and more readily available and, to a large extent, because it has come to be accepted as an essential part of the integrating network of the community. Distant teaching and learning in many instances has been recognized as part of the formal educational system but also as an important medium of nonformal education. Many years ago, UNESCO borrowed the Canadian Broadcasting Corporation's successful Farm Forum model from Canada and has sponsored its effective introduction in many parts of the Third World. Another useful educational device, with strong ILO sponsorship, has been the self-teaching module for on-the-job training, relevant to vocational needs and saving the capital and personnel costs of elaborate technical training institutes.

Perhaps even more important have been widespread efforts to improve the quality of the teaching and learning process. A number of examples were provided of improvement in teacher-training methods, the reform of curricula, a greater consideration given to the learning process to reduce drop-outs, and facilities for preprimary training. In many cases these efforts at qualitative improvement have enlisted strong support from parents and members of the local community who have been willing to assume additional costs.

Important changes have taken place in the role of higher education in countries of the Third World. In many of the new postcolonial nations of Asia and Africa, higher education was originally regarded as a status symbol and a passport to a responsible position in government service. Although some of this elitism remains, universities are being increasingly regarded as serious contributors to the social and economic development of their countries. The United Nations Conference on Science and Technology for Development (UNCSTD) in 1979 emphasized the necessity of strengthening the scientific and scholarly capability of Third World countries vested in their universities and research institutes.

One important characteristic of these institutions of higher learning is that they are linked in a network with similar institutions in the developed as well as the developing world. Immediately after the war, the British universities established the Inter-University Council to place the resources of British universities behind the efforts of the new

nations of the Commonwealth to build up their institutions of higher learning. A similar initiative was taken by the Netherlands Universities Foundation for International Cooperation (NUFFIC). In both cases, financial support was made available by the government, but the relationship remained a cooperative one, not donor to recipient but among equals, university to university. At the beginning, the new universities tended to be replicas of the old. But, increasingly, they shaped themselves to the needs and the culture of their people. In the continuing relationship there was a mutual exchange of experience and learning.

Nor is the international cooperation of educators confined to the universities. At all levels and in various fields of specialization we have witnessed the formation of regional and sometimes fully international networks, sometimes for consultation on matters concerning adult education, vocational training, or some special fields of research, sometimes in support of specialized training centres in such widely separate fields as communications and book production. Sometimes the conferences and associations find support from international agencies such as UNESCO, ILO, WHO, the Food and Agriculture Organization of the United Nations (FAO), and the United Nations Children's Fund (UNICEF). Sometimes they are under more inclusive sponsorship, such as the Commonwealth Secretariat or the Association of Commonwealth Universities (ACU). In many cases they are closely linked with institutions in developed countries with support from national government agencies. In certain cases, the support is directed toward specific research projects with the ultimate aim of strengthening the research capability of a country or a region. The activities of the International Development Research Centre (IDRC) and the Swedish Agency for Research Cooperation with Developing Countries (SAREC) are examples. In other cases, support will be in the form of facilitating interinstitutional linkages or providing funding for a linked project. In Canada, the establishment of the International Development Office of the Association of Universities and Colleges in Canada, of the Institutional Cooperation and Development Services Division of the Canadian International Development Agency (CIDA), and the Cooperative Programs of IDRC are important advances.

The shift of initiative to the governments and institutions of Third World countries and the establishment of effective cooperation — with international and national agency support — among educational institutions in developing and developed countries has obviously changed the donor–recipient relationship fundamentally. The dominant role of the donor agency in both design and support of educational systems had ceased to exist. Nevertheless, within the new emerging framework of cooperation among mutually respecting equals there obviously is increasing need for developed-country support for the educational endeavours of the Third World countries. Within the new cooperative framework, which included educators from developed countries, such support held promise of important achievement.

Perhaps one of the important contributions of the conference for all its participants was the new light thrown on the concept of education. Some of the changes in concept have been noted in this review. It is no longer tied closely to improvement in functional efficiency in employment, although it obviously has a relationship with a person's competence as a contributing member of a community. It should strengthen a person's relationship to and appreciation of his or her cultural heritage without fostering an ethnic alienation. It represents, in Nyerere's words, a liberation into a sense of creative fulfillment as a human being. Finally, it bridges the gap between two worlds, a gap marked by a focus of power and a focus of poverty, by uniting those in both worlds who see themselves as members of an emerging global community.

Adjusting to the 1980s: Taking Stock of Educational Expenditure

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The purpose of this paper is to develop the general case for maintaining real educational expenditure at the levels of the 1970s, although recognizing the need to shift emphases. This is undertaken through identifying current pressures on educational budgets in developing countries, establishing the range of contemporary and historical rationales used to justify educational expenditure, and reviewing current evidence on the effectiveness of educational expenditure in promoting development objectives.

Recent developments in the economic climate that are likely to constrain the capacity of many countries to maintain their education expenditures at existing levels in real terms and political and social factors that are likely to influence levels of spending are discussed. An historical analysis of spending rationales is given to consider contemporary justifications as represented in a selection of National Plans. This provides a context for the examination of current evidence on the effectiveness of educational expenditure in promoting development. In particular, the balance of evidence is discussed on the effects of education on productivity in the modern sector, the urban traditional sector, and in agriculture; on income inequality; and on fertility, mortality, health, and nutrition. The case for maintaining expenditures at broadly similar levels to the 1970s is emphasized and the desirability of shifts in emphasis is highlighted, particularly toward spending on primary and basic education, on systematic programs of quality improvement, and on integrated planning and development strategies. Areas where policy-oriented research could usefully be undertaken are also identified.

We would be the first to admit to the large differences between countries in the form, funding, and development of their education systems and recognize that no simple universal policy prescription is either possible or desirable. We argue, however, that in an increasingly interdependent world, structural similarities in problems do exist, and policy formation often involves similar questions if not similar specific responses. Thus, while recognizing the limitations of generalization, we take it as part of our brief to reach conclusions that may be broadly applicable to a wide range of developing countries.

Education budgets are likely to be under increasing pressure for the remainder of the 1980s. The outlook for growth in the world economy is a fairly pessimistic one with predictions of an upturn in economic activity and movement out of recession slipping later and later into the decade. The impact of monetarist policies in the industrial countries has hit developing-country budgets by suppressing growth in demand for imports from developing countries and increasing their debt service burdens through high interest rates. Recession and high interest rates have also worsened the climate for flows of capital, particularly to the poorest countries. As a result, competition for resources from national budgets is likely to be fiercer than in the past. There is a real danger that social spending may suffer disproportionately. If this happens, the financial savings will be short-lived and the achievement of medium- to long-term development goals is likely to become more difficult.

A growing number of industrialized countries have sought to limit or reduce educational expenditure and truncate the growth characteristic of the last decade. Because changes in the climate for policymaking in the North often have an impact on the countries of the South it is important to appreciate the nature of recent shifts in emphasis. In the U.K. and the U.S., for example, governments skeptical of the value of much educational spending have sought successfully to reduce expenditure. This has resulted from the limits on spending imposed by governments in response to sluggish or zero growth during recession, the preference for sectors other than education for public spending (e.g., defence), and the application of monetarist philosophy to the financing of education (e.g., in supporting the transfer of more costs to private individuals). Thus, in the U.K. spending on universities has been reduced by up to 20%, and undergraduate enrolments have been reduced (by 4%) for the first time since World War II. Student loans are being considered as alternatives to grants. Educational expenditure as a proportion of gross national product (GNP) has declined continuously since the mid-1970s (Times Higher Education Supplement 19/02/82). Sir Keith

Joseph, the English Secretary of Education, reports that the U.K. government (Times Education Supplement 12/02/82):

> . . . has made its priorities very plain. Four great areas are being protected. They are pensions, defence, the national health service and the police. . .there is no precise link between spending and quality in education within limits. . . I have long been fascinated and perturbed by the endless increasing expenditure and the apparent endless failure to achieve all our hopes or anything like all our hopes.

In the U.S. defence spending has been substantially increased, partly at the expense of health, education, and welfare, and attempts are being made to reduce substantially the state subsidies of student loans and grants to transfer more of the costs to individuals. Cuts in both countries have so far concentrated on the noncompulsory areas of the systems, e.g., higher and further education, preschool provision. This is understandable because legal obstacles exist to substantial reductions in support for the compulsory cycle. Moreover, demographic factors account for the numbers participating in compulsory education; the numbers involved in programs where attendance is voluntary (and subsidized) are much more a product of the supply of places that can be more easily regulated.

In a more general sense, most of the industrialized countries have reduced expenditures on education as a proportion of their national budgets. Thus, of 13 industrialized countries for which statistics are available, nine reduced the proportion of the national budget allocated to education between 1970 and 1978/79 (Table 1). Most of those who modestly increased their proportions were countries on the European periphery (e.g., Ireland, Spain) (UNESCO Statistical Yearbook, 1981).

The climate for funding education has, therefore, changed and become less favourable than it was in the mid-1970s. Certainly the expansionary development of postcompulsory, state-funded education characteristics of the 60s and 70s now seems firmly in the past. Moreover, expenditure on research and curriculum development programs has also suffered (with large cutbacks in the funds available to research councils and development groups, e.g., the U.K.'s Social Science Research Council and Schools Council). In public debates it is increasingly common to hear the earlier optimistic faith in educational development providing a solution for a plethora of social and economic problems replaced by a skeptical questioning of the results of 2 decades of investment. This questioning often seems to overlook the substantial achievements of the development that has taken place and to concentrate selectively on problems on which it has had little impact.

In the South, education expenditures are also vulnerable to public spending cuts. Because they make up the largest or second largest proportion of many governments budgets it could hardly be otherwise. First of all, however, it must be pointed out that the available evidence does not indicate that downward trends in expenditure are as widespread as they are in the North. Between 1970 and 1977/78, proportions of total public budgets allocated to education did decline in the developing countries of Africa, Asia, and Latin America by an average of 0.95 percentage points (from 16.12 to

Table 1. Number of countries in which the proportion of public expenditure allocated to education increased or decreased between 1970 and 1978/79[a] and between the most recent 2 years available.[b]

Region	1970–1978/79		1976 and later	
	Increase	Decrease	Increase	Decrease
Africa	4	8	9	9
Asia	5	4	6	10
Latin America	5	10	7	5
Caribbean	6	3	5	3
Oceania	3	0	0	4
Total developing countries	23	25	27	31
Socialist countries	1	4	2	3
Market economies	3	5	4	10
Total industrialized countries	4	9	6	13
Total	27	34	33	44

[a] Latest figure available taken.
[b] 1976 and later only considered.
Source: UNESCO Statistical Yearbook, 1981.

15.17%), which was slightly less than the decline in industrialized countries of 1.18 percentage points (from 14.31 to 13.13%). Average levels of proportionate expenditure between 1965 and 1970 had increased for both groups but by less than the fall from 1970 to 1977/78 (see Table 2).

More detailed data on changes in educational expenditure from specific countries and from regions within the South point to a very mixed picture. No clear systematic trends are indicated (Tables 1 and 3). Expenditure in the market economies does appear to have been reduced as a proportion of budgets, although real levels of expenditure in these countries are of course very high. In the developing countries, there are nearly as many examples of increase as there are of decrease in proportions over a 7-year period with little evidence of a tendency for reduction late in the decade. Surprisingly, perhaps, data for the period 1965–70 (Coombs and Chaudhury 1981) indicate a similarly mixed pattern. Of 24 developing countries spread across the regions, 12 increased their expenditure proportion and 12 decreased it.

The picture shown by Table 1 is broadly consistent with a leveling off of the increases in funding that many countries experienced in the 60s and early 70s. These general findings are at variance with those of Coombs and Chaudhury (1981) who identify decreasing trends with more confidence using slightly earlier data. From the most recent data available it does seem that some countries were beginning to reduce proportions at the end of the decade but the picture remains mixed (Table 3).

Thus, the case for maintaining levels of educational expenditure in developing countries is one that may seem premature. There are good reasons, however, to believe that an anticipatory strike to defend budgetary allocations is in order. First, although current figures do not show substantial drops in proportional allocations, this does not mean that no changes are taking place. Educational budgets are notoriously "sticky" because much recurrent spending is on salaries, which cannot be rapidly reduced. Thus, when changes in priority do take place it may be several years before the effects of low pay and reduced recruitment make themselves felt in budgets. Second, low, or even negative, economic growth rates along with high inflation may be reducing the resources available for education in real terms even though proportional spending is maintained. (Recent events in Zambia are perhaps the best known example of this.) In such cases, it is crucial that educational quality and provision not be allowed to suffer substantially if prospects for recovery are not to be severely damaged. Third, changes in allocation within the education sector, for example, to support the high cost of expansion of tertiary education have characterized recent developments in some countries. This may have the effect of reducing, in real and proportionate terms, resources available to other sectors, e.g., primary/basic education. If education budgets are allowed to decrease, the sectors within education that suffer will not necessarily be those with least development value. Fourth, and most important, the impact of the recession in the Organization for Economic Cooperation and Development (OECD) countries combined with the introduction of "hard" monetarist policies, has only been a feature of the last 2 years. The worst effects of these policies on the developing countries are yet to come and will only begin to show up in published statistics in 2 or 3 years' time.

For these reasons we believe that the current position may not be as evenly balanced as the data suggest. If public expenditures are reduced in real terms, as, for example, is predicted for sub-Saharan Africa (World Bank 1981b), then pressure will undoubtedly fall heavily on education budgets with adverse consequences for medium- and long-term development goals. The impact of reductions in spending in many developing countries is not likely to parallel experience in the industrialized countries for a number of reasons. Most obviously it will be those areas of the budget that are seen to be most politically expendable that will suffer, and in many countries these are likely to include basic and primary education provision, rural education programs, and nonformal and adult education. Nonsalary recurrent expenditure is also vulnerable although the savings may be small and making them may compromise the impact of salary expenditure. Core sectors, closest to the hearts of the urban elite, are less likely to suffer, e.g., secondary and tertiary provision in high-cost institutions, although they may not represent the most effective use of available resources. In many

Table 2. Average percentage of public expenditure allocated to education.

	Industrialized countries (13)		Developing countries (26)	
	Average (%)	Standard deviation	Average (%)	Standard deviation
1965	13.96	6.43	15.50	5.72
1970	14.31	6.56	16.12	6.79
1977/78[a]	13.13	5.76	15.17	4.68

[a] Latest figures available taken.
Source: UNESCO Statistical Yearbook, 1981.

Table 3. Time series data on percentage of public expenditure allocated to education for 15 developing countries.

	1973	1974	1975	1976	1977	1978	1979	1980	1981	1982
PNG	15.1	14.5	14.3	14.5	17.8	17.9	15.0	13.7	13.2	—
Pakistan	—	4.2	4.5	4.3	5.1	5.2	5.1	—	—	—
Nigeria	—	—	—	16.5	12.5	13.9	16.2	—	—	15.0
Thailand	18.6	18.0	20.4	21.1	21.6	20.2	19.6	19.7	20.0	20.0
Tanzania	12.3	12.2	14.1	13.6	14.5	11.7	13.9	12.2	—	—
Algeria	—	—	23.0	24.9	25.8	17.3	12.3	—	—	—
Somalia	—	—	12.5	13.4	13.9	10.6	8.4	—	—	—
Togo	—	—	15.1	14.0	18.0	20.9	20.3	—	—	—
Honduras	—	—	20.3	17.8	17.3	15.2	14.3	—	—	—
Panama	—	—	21.3	20.8	22.2	21.9	21.8	—	—	—
Peru	—	—	16.6	16.3	14.7	14.0	10.5	—	—	—
Jordan	—	—	7.7	7.7	6.9	5.8	9.5	—	—	—
Korea	—	—	13.9	17.7	17.0	16.1	17.4	—	—	—
Nepal	—	—	10.7	10.9	9.0	8.6	8.3	—	—	—
Saudi Arabia	—	—	11.7	10.6	10.3	11.6	10.2	—	—	—

Source: National plans; UNESCO Statistical Yearbook, 1981; and personal contacts.

countries chronic shortages of educated manpower are still a substantial problem despite the emergence of "educated unemployment" in others. Reducing educational spending in these circumstances is likely to be counterproductive. Even those systems that are "overproducing" in terms of available modern-sector employment are unlikely to improve their quality or change their orientation if funding is reduced. Austerity is not a sine qua non for educational reform, indeed successful innovation and qualitative development usually require additional resources. It would, therefore, be useful to consider what the pressures on budgets are and how influential they are likely to be. This can provide a framework for examining contemporary rationales and the evidence on their validity.

Pressures on Educational Budgets

There are several different pressures on the reduction of educational budgets in developing countries that are likely to be important in the 1980s. In general, they fall into two main categories — those that affect the overall level of public expenditure and those that influence the priority accorded to education within a given level of expenditure. These categories are not mutually exclusive. For any particular country their importance in determining budgetary allocations varies, as does the strength of countervailing pressures.

The slow down and stagnation of economic growth in the countries of the North has had predictable effects on the economies of the South (Brandt 1980). Although the newly industrializing countries and most net oil exporters have been able to increase public expenditure budgets in line with their economic growth, the bulk of low- and middle-income oil importers have experienced considerable difficulty in maintaining expenditure in real terms. Rapidly increasing energy costs (with oil prices increasing by 80% between 1978 and 1980 in real terms), growing balance of payments problems, and stagnant or declining volumes of international trade have combined to produce growing current account deficits in many countries. Consequent exchange rate pressures have fueled domestic inflation and reduced the real value of resources available to governments. In some highly import-dependent economies, effects of the economic crisis have led to acute shortages and bottlenecks, to the suspension of public-sector projects, and to an inability to transform financial resources into the purchase of imports that are needed for development. Tanzania and Zambia are two of the most pressing examples of countries in this predicament. There are many others that are, or soon will be, in similar positions. As a result of this overall pressure on resources, education budgets are under pressure. However, it must be remembered that educational budgets are particularly vulnerable in the conditions described above because they are not as easily defended as are some other forms of investment. Projects that have short-term returns and make immediate contributions to reductions in deficits and balance-of-payments problems may well appear more attractive, although their long-term developmental impact is less.

The unfavourable economic climate for development has had further consequences for public

expenditures. International institutions have taken a greater role in the adjustment process than previously, and an increasing number of countries have taken advantage of the facilities offered by leading institutions to overcome pressing financial problems. Simultaneously, with this growth of lending there has been an increase in the conditionality of loans. This has most often been of a kind that favours tight controls on public expenditure and reductions in its level (Daniel 1981). The recently published World Bank report on "Accelerated Development in Sub-Saharan Africa" (World Bank 1981b) provides an example of some of the tensions this can create. Although the report argues for increased expenditures on human resources, including education, the effects of the macroeconomic policy it advocates are likely to exert a dominant influence in a contrary direction, which would make any such increase difficult to finance. The general points that must be made are that: many countries, especially in Africa, spend up to 40% of their public budgets on education, health, and agricultural extension; because of the magnitude of these expenditures and because large proportions of them are spent away from the centre (rural rather than urban, often supporting nonestablished rather than established posts), these are the areas where cuts are most likely; this result is made more, rather than less, likely by World Bank emphasis on short-term and directly productive expenditure; and it is expenditure in these areas (expenditures that will not be replaced by the private sector) upon which medium- to long-term growth in production in developing countries heavily depends.

The effects of recession and increasing conditionality of loans are, therefore, likely to threaten social development expenditures in general and education in particular, as are any reductions in the resources available from donor agencies. This is especially critical for the low-income, oil-importing developing countries where the bulk of external finance is provided by Official Development Assistance (ODA) (World Bank 1981a). Real ODA receipts in these countries in 1978 and 1980 were, in fact, below the level reached in 1975, and there was no increase in the flow of commercial loans. The outlook for the immediate future is not very encouraging. The largest industrialized donor country (the U.S.) anticipates a 25% reduction in disbursements in 1982/83; the fourth largest (the U.K.) has planned for a reduction of 11% in overall commitments for 1982/83, with the possibility of more reductions subsequently. Because most external finance for education is provided by bilateral aid (World Bank 1980b), and multilateral contributions are difficult to renegotiate in the short term, the overall reductions quoted above are likely to be greater for educational aid programs. To some extent these reductions in available funds may be offset by increases in levels of support from Arab OPEC countries and the other OECD donors, but this is by no means certain. At a time when the needs for concessionary funds are increasing, it would be highly undesirable to allow the amount available to decrease in real terms.

Complementing those pressures on education budgets, which arise from difficulties in maintaining aggregated expenditure levels, are those that are likely to reduce the priority accorded to education. The emergence of major competing sectors for public expenditure over the last decade has increased competition for resources as most governments have sought to provide more services in different sectors. In some regions, defence spending has risen dramatically and preempted large proportions of available resources, although the effectiveness of much of the expenditure is questionable. Certainly the developmental implications of the 40 000 village pharmacies or thousands of basic primary schools that could be provided for by the cost of one jet fighter are substantial. Price support and food subsidies have been increasingly used, and have made substantial demands on public expenditure as have infrastructure development projects. Newly identified needs for population, environmental, and employment programs have also added to the demands on scarce resources (although, of course, some of these have an educational component).

In addition to the increase in the competition for funds, shifts in the international climate for development also affect the priority accorded to educational spending. The impact of human capital theory on educational plans in the 60s and 70s is one example of the possible influence of theoretical paradigms developed primarily in the North for the North on the South. It seems reasonable to suppose that some of the arguments currently influential in the North, which are leading to reductions in educational expenditure, may well be projected onto the South in a similar fashion. Thus, Seers (1981) has already argued that:

> . . . because many governments have had to go to the IMF for assistance in meeting their deficits they have had to adopt open door development strategies and monetarist policies irrespective of social needs or economic structure. . .neoclassical influences, originating overseas and purveyed through many other channels, academic and official, have prepared the ground for such pressures.

Conditionality of loans is, therefore, linked with the export of ideas that, indirectly, are likely to increase pressure on education budgets. Among other things, a need to transfer more of the costs of education to private individuals is likely to be implied by shifts to more monetarist policies. Even if the need for lower levels of public expenditure were accepted in the North, and there is growing evidence in the U.K. and the U.S. that it is not, conditions are sufficiently different in most developing countries for no direct translation of policy to be appropriate. As far as education is concerned in many countries (with some exceptions) private education is of poor quality and expensive and surplus income is not available, in the majority of households, to substitute for government spending in this area. Neither is public support for education obviously less attractive or of less long-term importance for developments in countries with low levels of basic educational provisions, than are alternative investments.

In a more general sense, disillusion with the results of educational investment and expansion in the last 2 decades has become fairly widespread and many of the criticisms of outcomes are familiar. Much of the skepticism is concentrated in the countries of the North and it is in the North that levels of expenditure have started to decline in some educational sectors, at least partly as a result of shifts in priority away from education. It is still rare, but not so rare as it was 5 years ago, to hear politicians and political commentators in the South question the value of much of the educational spending that has taken place. The extent to which this kind of disillusion and skepticism is projected onto the South clearly has substantial implications for budgetary allocations; the extent to which it is justified depends on close examination of the existing evidence on the relationships between educational expenditure and development as reviewed later in this paper. Two observations are pertinent here. First, it is now much clearer than even a decade ago that the problems to which educational investment was thought to be the key are far more intractable than they appeared at first. For example, few would argue now that problems of income distribution inequalities might be solved by greater access to education alone or that economic development would follow necessarily from success in technically matching the output of schools with the educational demands of the labour force. Second, is that success is relative to expectations. Much of the disillusionment with educational development stems from wholly unrealistic expectations of both the magnitudes and rates of change of economic variables that it could promote. This lack of realism was a characteristic of much of the development literature that focused upon constraints on economic development. Formulating the problem in this way, and identifying the lack of educated people as a constraint, which it certainly was, had the disadvantage of implying that overcoming the constraint was the key to development. Reality was far more complex. The search for the constraint was similar to the search for Methuselah's elixir. Overcoming one constraint may have been a necessary condition, but it certainly was not a sufficient one. Moreover, a concentration on the removal of constraints carried with it the implication that development was a natural process that was being impeded, in contradiction to those who saw development as a dynamic process that could be consciously planned and deliberately accelerated.

Neither of these two observations, however, implies that some reassessment of priorities is not needed for the 1980s. Particularly in those countries that have seen costs spiral, especially at the highest levels of education, and educational provision exceed the absorptive capacity of the labour market, it is essential to reexamine what evidence there is on the efficacy of educational investment. The proportion of public expenditure spent on education in developing countries exceeds that of the industrialized countries by less than 2% on average (Table 2) and is considerably less in real terms (World Bank 1980a). Education needs, on any reasonable definition, are a long way from being met in most developing countries and substantially so in the poorest. If changes are needed they are most likely to be in the distribution of educational expenditure between sectors rather than any reductions in the overall level, except, perhaps, in those countries that are spending more than 25% of their public expenditure on education.

Opposing those pressures that tend to reduce the overall level of public expenditure and the priority given to educational expenditure are those that act to increase spending. Because most formal educational systems are organized bureaucratically, with incremental salary scales for teachers, and teacher salaries represent 85% or more of recurrent costs, there is some built-in tendency for costs to increase from year to year where average teacher age and length of teaching service increases. Expansion in enrolments, still a dominant concern in many countries, also increases overall costs, although not necessarily costs per student. Thus, education budgets need to grow at least as fast as the combined effects of increases in salary costs (and other recurrent expenditure) and increases resulting from the provision of more places as population

grows to merely ensure the maintenance of existing levels of support per student — a difficult proposition when overall economic growth rates are very low.

The influence of popular demand for schooling on educational expenditures is a second factor that should not be underestimated. Education is still seen by an enormous proportion of the world's population as the most likely, and often only, route from rural poverty to urban affluence. Here the folklore is borne out by the facts in many countries; this generation's leaders are the successful products of yesterday's schools; incomes of school graduates are many times those of early school leavers; and school qualifications provide access to secure jobs in the civil service and in the private sector. Even in countries not noted for egalitarianism, political demands for equal opportunities, or at least their appearance, have proved irresistible even at the expense of creating large facade or shadow systems that merely go through the motions of providing schooling with little or no success in getting their graduates into the higher education institutions that lead to the top jobs. The demand for schooling is, therefore, as strong as ever. Indeed, where opportunities to earn incomes are severely limited, modern-sector unemployment is high, and the impact of poverty is not softened through social welfare schemes, educational success is critically important in determining individual futures and demand is, therefore, high. The consequences of not responding to the demand may escalate from grudging acceptance to emerge as civil unrest (as it appears to have done in Sri Lanka in the early 1970s).

Because the Ministry of Education is often the largest single employer in a country) particularly of the more articulate employees), education has many vested interests associated with it and this is a third pressure to increase expenditure. Employees (teachers, secretaries, clerks, assistants, etc.) have direct interests in maintaining levels of activity as do suppliers of educational materials (books, equipment, furniture, etc.). The private sector of education often has an interest in increasing state subsidy for its activities. Higher education interests often have direct links with senior government officials through which they can influence policy. Teachers' unions may be influential in determining levels of expenditure and promoting particular sectors. Thus, in some countries, e.g., the Sudan and Kenya, higher education lobbies have been more successful in defending their interests in growth than representatives of other interest groups.

A fourth factor is that international donor agencies have had a significant role in promoting educational spending in the last 2 decades. In countries where high proportions of educational investment are externally financed their role is obvious. In stimulating and supporting research and in meeting foreign exchange and some local costs they have further added to both demand for and expenditure on education. Their role in the next decade depends critically both on their attitudes to further expenditure (and, by implication, views on the effectiveness of past disbursements) and on the funds available to them from their sponsors, which show signs of being less generous than in the past.

The balance between pressures to increase or decrease budgets varies over time (as the tables on expenditure illustrate) and from country to country. Being aware of what the major pressures are likely to be in the next decade should assist the process by which individual countries reach judgments of the most appropriate levels of spending. Before considering contemporary rationales that are used to justify educational expenditure it is important to appreciate the form educational development has taken in different countries.

Rationales for Educational Expenditure

Educational growth in industrialized countries and in most developing countries has followed substantially different trajectories. Any attempt to characterize these must necessarily gloss over the finer points of difference, because neither group of countries is homogeneous. There are considerable differences between the English and German experience as there are between the Indian, Brazilian, and Kenyan. Nevertheless, we feel it is useful to highlight aspects of the development process that seem characteristic of countries that industrialized before the 20th century, in the first half of the 20th century, and those that are still in the process of industrializing.

Among the first group of countries five characteristics stand out. First, growth in enrolments and in public spending was slow and continuous over long periods of time. In England, for example, schools existed as far back as medieval times and their growth proceeded sporadically until the late 19th century when a phase of slow, continuous expansion set in. As many schools existed in the 16th century as in the 19th century (Anderson and Bowman 1965). In the U.S., the first schools were established by statute as early as 1647; growth in provision was not very even, although by the middle of the 18th century the number of colleges

and academies granting degrees exceeded the number of similar institutions in the U.K. (Storr 1965).

Second, in most countries dual systems operated in parallel with few, if any, connections between them. This was especially true in Europe. Characteristically, old established schools provided for the education of gentlemen from the higher social classes in the tradition of a liberal education that could trace its origins back to Homeric Greece (Muir 1981). This contrasted with provisions for other social groups that tended above all else to stress moral virtue and the basic skills of the three R's — reading, writing, and arithmetic — as the basis of a sound education. More than anything else perhaps, the differences between the two parts of the dual system can be highlighted by noting that, by and large, one group of schools confirmed social status for those whose family background gave them access, whereas the other conferred status by providing some limited opportunities for advancement through academic achievement.

Third, the provision of mass formal education followed rather than preceded the transition from agriculturally to industrially based economies. In these instances, there is no convincing case that economic growth depended directly on educational provision because there was so little available. Indeed many of the 18th century entrepreneurial innovators and inventors in Britain did not have the benefit of any systematic education (Ashby 1961). Basic literacy was fairly widespread in 18th century England, however, and it is very plausible that this contributed directly to the spread of new ideas and the growth of knowledge of new techniques. Although schooling probably did not provide many specific skills of use in industrial and agricultural production, the development through them of literacy, numeracy, and some social values (punctuality, discipline, etc.) may well have been instrumental in providing conditions favourable to economic growth.

The fourth observation is that when growth did take place in most systems it was the elementary level that grew fastest toward universal provision and only when substantial progress had been made with this did higher levels grow substantially. Thus, in the U.K. in 1870 when Fosters' Education Bill introduced universally available primary education, about 40% of the relevant age group were enrolled at the primary level and 2% at the secondary. Thirty-two years later, when local authorities were finally charged with the responsibility of providing secondary education, primary enrolments had risen to include over 80% of the relevant age group, although secondary enrolments remained constant at around 2% (Dore 1976a). It was also at the elementary levels that government control and integration into unified systems first began to occur. Thus, as early as 1849, Horace Mann in Massachusetts was advocating a publically supported primary school system open to all children. In many countries this process was never completed and there is still a considerable diversity of funding and, to a lesser extent, control of school systems.

Finally, in most early industrializing countries private sources of funding provided very substantial proportions of the finance necessary to support the formal education system. Early educational legislation in the U.S. tended to favour provision without mandatory conditions on sources of funding (Storr 1965). Philanthropy in the U.K. was responsible for the founding of many early schools, and this provided a model for the fast-growing American states. In the 19th century, the benefits of running schools and colleges as profitable private enterprises added another dimension to the growth and financing of mass schooling, particularly in the U.S. Characteristically, early expansion was not hampered significantly by dependence on scarce government funds and education was not often in direct competition with other state-financed sectors. Higher levels of education were frequently funded from sources other than the state. As late as 1920, U.K. universities as a whole were more than 50% privately funded (Levy 1981), and some still draw on very substantial private resources.

The general characteristics of educational development in early industrializing countries can, therefore, be listed as: slow and continuous growth over a long period, coexistence of dual systems serving different clientele that have only gradually and partially merged, industrialization before the mass provision of formal education at any level, growth in elementary school enrolments to a high level before substantial growth in secondary and tertiary numbers, and high levels of private support for educational provision with generally increasing state support.

These patterns are not universally valid and there are certainly significant departures from them. However, they do represent a characteristic mode of development that is in sharp contrast to those in many developing countries. Before considering these in detail, it is useful to examine how Japan, as an "early" late developing country, might fall into the pattern described above.

Japanese educational development was undertaken in a political climate much more similar to that in which many developing countries currently find themselves than to that which accompanied

educational growth in Europe and North America. After the Meiji restoration, Japan embarked on a deliberate, state-directed policy of modernization (Dore 1976a) that included the development of a modern education system as an essential element of the policy. A dual system of education existed before 1868 that catered for the sons of Samurai, on the one hand, and those commoners fortunate enough to be considered worthy of some basic education, on the other. This had grown gradually over more than a century and was not centrally organized or funded. After the first tentative efforts at reform the momentum of change rapidly increased and, in 1872, a plan was announced for a centralized, unified education system on the French model. This reflected a determination

> . . . (a) to bring the whole nation within the scope of the elementary system and (b) to make the national school system a unitary pyramid of graded layers in which all children started from the same place, moving as far up the ladder as, in the words of the 1872 decree, their 'ability and their means' permitted. (Dore 1976a)

As a result, the slow period of growth in educational provision was superseded by a rapid expansion in elementary school enrolment in government-sponsored and controlled schools, which increased enrolment ratios at this level from 28 to 98% between 1870 and 1910. Only after elementary school enrolments included more than 90% of the relevant age group did secondary provision start expanding. Moreover, these growths in enrolment were achieved at a time when the majority of the labour force was employed in agriculture not industry (83% in 1870 and 59% in 1910) (Japan Education 1965).

Thus, after 1872, Japan's educational growth can be characterized as: fast and discontinuous with the past (new institutions were created in proliferation based in large part on imported models rather than developments of existing schools), abandoning the dual system pattern of organization under the pressure to modernize and the general rejection of ascription in favour of more meritocratic methods of selection for jobs and acquisition of social status, largely preceding industrialization and high rates of economic growth, focusing initially on elementary school growth, and heavily state subsidized.

It is very difficult to generalize about educational expansion in developing countries. The experience of Latin American countries with long periods of independent government is very different from that of Asian countries with a strong colonial legacy and historically rich educational heritage. Both differ markedly from African countries recently independent and often chronically short of resources. The different traditions of the major colonial powers complicate matters further. Very broadly speaking, in most late developing countries the growth of education systems exhibits most of the following characteristics, which have substantial implications for current policy.

First, growth was very rapid once expansion in enrolments had begun in earnest. The spur for this was usually the gaining of political independence before which time education was typically neglected by colonial governments. India was a notable exception to this with substantial educational provision developing a long time before independence. Much of what was available was provided with mission rather than state support. Demand for education was viewed ambivalently by colonial governments. More often than not growth was discontinuous, replacing rather than developing traditions and institutions that had existed earlier. Thus, where traditional forms of education, both nonformal and formal existed, they frequently withered in competition with the expansion of schooling. In Latin American countries, growth took place over a much longer period than in Africa, starting in earnest at the end of the 19th century, with school systems developing more rapidly in some countries, e.g., Peru, than in others, e.g., Brazil.

The second characteristic is that growth has been very uneven and coupled with the institutionalization of inequalities of access and provision. Typically, urban provisions for education have exceeded those in rural areas by staggering amounts, and large regional differences have been reflected in most indications of educational performance (enrolments, drop-out rates, promotion rates, female participation rates, and examination results). Within urban areas considerable differences in standards, access, and provision have also persisted and sometimes widened as growth has occurred. Many systems can now be thought of as containing large facade sectors where much of what transpires contributes little to the chances of individuals progressing through the system and action sectors that cater for children who have good prospects of becoming members of the schooled elite of the modern sector (Somerset 1982).

The third common feature is that educational growth precedes industrial growth and takes place when the majority of the labour force is in agriculturally related occupations. One consequence of this is that the selection function of schooling tends to assume much greater importance than in countries that do not have such strongly marked dual economies as in many developing

countries. The school, as the bridgehead to the modern sector, plays a crucial role in acting as a conduit from rural poverty to urban affluence. A second consequence of this is that the burden of supporting a mass education system falls on a population where many are engaged in economic activities that do not generate large surpluses.

A fourth feature is the imbalances in investment at different levels of the system. In sub-Saharan Africa, unit costs in higher education are up to 100 times greater than in elementary education. In Latin America, and South and East Asia, this ratio is of the order of 8−10:1 (World Bank 1980a). Forty-one percent of total expenditure on education was on primary, 27% on secondary, and 31% on higher education in developing countries in 1975, although enrolment in primary schools in many countries was substantially short of universal primary education levels and average enrolment ratios in higher education were less than 5% (World Bank 1980b). In a substantial number of countries, but by no means all, investment in higher education has been disproportionately generous, partly at the expense of secondary and primary schools.

Fifth, in the great majority of countries growth has been heavily financed at all levels by the state. Even in those cases where community resources have been mobilized e.g., Kenya, the recurrent costs have usually been met by governments. Although private expenditures vary greatly from country to country, they are not usually of the same magnitude as state support. Where they are, this is usually the result of the maintenance of a dual system, catering for different clients. Some Latin American countries have particularly buoyant private sectors.

Finally, it should be noted that the growth described above occurred in most cases within pedagogical tradition, patterns of organization, and curricula materials derived from industrialized countries. It is rare to find education systems in the developing world that do not bear strong hallmarks of one or more culturally alien sets of curricula assumptions. Thus, from the outset, the state had a more instrumentalist view of education and played a greater part in supporting its development in most developing countries (and in Japan) than was the case in Europe and North America during their industrialization. Rapid and uneven growth has led to problems in maintaining quality and matching educational outputs with economic needs. This has led some to doubt the effectiveness of the investment that has taken place. The centrality of state support and a dominantly instrumentalist view of the purposes of educational expenditure has increased the sensitivity of educational budgets to changes in economic climate and interpretations of relationships thought to exist between educational investment and economic growth. Differences in experience between industrial countries and developing countries suggest that even if a case could be made for reducing educational expenditure in the former it would not necessarily be valid in the latter. They also suggest that the consequences of reductions may be very different in developing countries, as they have been with respect to the expansion of resources in the past.

Financing Education

In England in the 19th century, two contrasting points of view were prevalent. The majority, it seems, were unconvinced of the possible benefits and, it was said: ". . .dread the consequences of teaching the poor more than they dread the effects of their ignorance" (Dore 1976a). Thus, one reaction to the establishment of a Society for the Diffusion of Useful Knowledge to further the cause of science education in the early 19th century was to warn that: "A scientific education for the working classes would derange the base of society. . .any alteration there will level the superstructure to the dust" (Layton 1977). This attitude contrasts with that of those who believed that mass access to education would lessen the problems of working-class crime, improvidence, and immorality; schools, they felt, should be viewed as organizations to socialize the lower orders. They were also necessary, as a number of commentators observed, if England were to maintain its competitive position. Lyon Playfair speaking in 1851 (Layton 1977) noted: "As surely as darkness follows the setting of the sun surely will England recede as a manufacturing nation unless her industrial population become more conversant with science than they are now."

In contrast, in Japan the dominant classes after 1868 seem to have had little doubt that education would contribute to both the loyalty and productivity of the population as a whole. Indeed the central component of the modernization strategy was to be found in the building up of the education system. Although there were some misgivings concerning the penetration of Western culture, this was balanced by deliberate emphases on moral and ethical education in school curricula designed to act as a counterbalance. As the Minister of Education observed in 1890 (Dore 1976a), teachers were:

> . . .in the first instance to nurture virtuous characters in their charges and to teach them to observe the Ways of Man; in particular it is necessary to develop a spirit of patriotism and

reverence for the Emperor; to prepare pupils to become loyal and good citizens who will work hard for their teachers and be of exemplary behaviour.

Perceived purposes, therefore, stressed the absolute necessity of acquiring Western technical skills through an appropriate state-provided education system. They also stressed the importance of social and moral skills. No country in Europe underwent as radical an upheaval in social structure as Japan in the 1860s, in which the traditional ascriptive patterns of access to wealth and status were replaced by more meritocratic ones based on performance in the education system. Nor did any see the need to catch up in quite the same way. The proportion of time devoted to ethics and morality in Japanese curricula was high and went beyond those topics included in Western religious curricula (Japan Education 1965). One possible result of this has a direct consequence for economic development. It has been argued that the historically high levels of saving in Japan (consistently of the order of 20% since 1900), which have provided much of the investment funds to support development, are a result of appropriately oriented education. Certainly thrift, diligence, honesty, frugality, and elimination of waste are all character traits actively promoted in Japanese schools and school curricula (Japan Education 1965).

Colonial rationales for expenditure on education varied greatly from country to country but have had some characteristic forms and have left a legacy that continues to influence contemporary policy. British education policy toward its colonies really only gained some coherence in the 1920s with the publication of the Phelps Stokes Commission's reports (Jones 1922) and the "White Paper on Education Policy in Tropical Africa" (U.K. 1925). Up until this time, administrations in the colonies had enjoyed considerable autonomy in their policies toward educational development and, within certain limits, were able to exercise considerable freedom. The conditions imposed were, essentially, that any support for education had to be self-financed, rather than constitute a burden on the colonial budget, and that it should be in the interests of the indigenous people (Lugard 1929).

Up until the 1920s, in most British colonies education was linked to church support and to the principles of voluntarism (Loveridge 1978). As a consequence, enrolments were small and attitudes toward them ambivalent. Some felt that the consequences of unchecked expansion would be disastrous. Others felt that growth accompanied by appropriate "educational adaptation" would serve to control potential unrest in the colonies of the kind that had afflicted British India (Carnoy 1974). Changes that promoted the acquisition of manual and agricultural skills through vocationally oriented curricula had the added attraction that: ". . .the right form of mass education increases the productivity of local communities so substantially as to more than recompense the government for expenditures made" (Jones 1922).

The French treated their colonies as a more integral part of the metropolis. This meant that what schools were established were tied to French curricula to a much greater extent than in British colonies where repeated attempts were made to provide a locally relevant education aimed at: ". . .giving him (the colonial subject) an understanding of his own environment rather than giving him the kind of education which is really only suitable in the environment of a country like Great Britain" (U.K. 1926). Education for women did not figure prominently in any plans, although, of course, their potential contribution to the development process was considerable.

From the 1930s onward some differentiation in provisions for education took place between those areas that were colonies of settlement and those that were not. Even in the latter, administrations typically spent more in aggregate on the education of expatriates than on indigenous people and development was slow. In those colonies with some measure of self-government involving local participation and representation (e.g., Ceylon), increased educational provision became one of the most persistent demands and largest components of public expenditure.

Historically, therefore, colonial rationales for providing educational services at particular levels depended on the balance of a number of factors. The first of these was primarily financial; until after 1945 state intervention and subsidy of education on a substantial scale was rare. Usually all developments had to be self-financing, or at least met from local revenue raising. Along with this constraint there was a strong tradition of voluntarism with various organizations, notably the churches, providing support for schools without state assistance. Lack of involvement in financing education coexisted with a laissez-faire attitude that essentially stressed nonintervention and left government resources free to invest in activities most directly related to trade and the interests of settlers.

Because educational provision had developed in a fairly arbitrary way it seemed necessary to many colonial administrations to establish some principles through which provision could be controlled. This stemmed from a genuine concern for "native interests" as well as disquiet with the effects of

overzealous missionary activity and the vaguely formulated paternalism of many administrations. Gradually, therefore, it came to be seen more in the colonial governments' interest to sponsor some level of educational provision. Much has been made of the association between the early growth of schooling and the needs of colonial administrations for literate clerks and educated nationals who could speak European languages. There is some truth in the argument that institutions were often established with this end in mind but the demand for government employees in many countries was not so great that provision was justified by this alone at the levels at which it existed.

After World War II, colonial governments gradually began to invest more in educational development. This was a continuation of a trend that had started in the self-governing territories at an earlier time. Because social demand was growing and because the realization of independence brought with it the need to localize the posts of large numbers of educated expatriates, systematic support for education and planned growth became a feature of most countries' development plans. The conventional wisdom of the late 1950s and 60s was increasingly influenced by beliefs in the efficacy of formal education to transform traditional agricultural economies into modern industrial states with some judicious assistance from rich countries. Few argued with the overriding priority given in many countries immediately before and after independence to educational expansion. Politically, the demand for such policy was usually irresistible and it was backed by general agreement that manpower needs had to be met as expatriates left. It also opened up a channel for social mobility to wide sections of the population who had previously been denied access. Increasingly, the possession of education began to legitimate differences in status and power that had previously been ascriptively determined.

This brief summary of rationales that have been used to support educational development highlights a wide range of arguments that have appeared under different conditions. In the early industrializing countries where educational growth was typically slow, preceded industrialization, and was substantially privately financed for long periods, ambivalence as to the effects of extending the educational franchise is a key feature. Social reformers argued for the civilizing benefits that would follow from basic schooling for the "lower orders." More conservative elements were alarmed at the prospect of a literate working class better able to organize itself and challenge the existing socioeconomic structure. Both groups were concerned with the importance of transmitting moral and ethical values through schooling; conservatives tended to doubt the effectiveness with which this could be achieved, however. Throughout the 19th century economic arguments gathered force as it became more difficult to deny the connections between production processes and the possession of general and specific skills, some of which might best be acquired in schools. Social demand for equitable access to education also became a potent force that culminated in mass education systems in most industrialized countries by the early 20th century.

In Japan there was far less ambivalence among the ruling classes to education. Modern schools were established within an integrated national system (replacing traditional ones) with the express purpose of hastening the modernization of Japan, particularly through the diffusion of Western knowledge. It nevertheless remained a strong and central part of the educational process to sustain traditional values that were not incompatible with new knowledge and technology. Schools were not regarded, in general, as potentially subversive but as necessary to ensure continuity of the Japanese way of life in competition with the superior technology of the West.

In developing countries rationales have varied greatly over time. Generally, colonial administrations saw little purpose in extending educational franchises particularly when it would involve significant state expenditure. Often the provision of schools was left to voluntary agencies (usually missionary societies), and state involvement was restricted to the education of a local ruling class sharing many values and adopting the language of the colonial administrators. Few colonies had economies that were thought to need large numbers of educated workers, and the most the schools were expected to do was to ease the transition from traditional to more modern societies and provide a smattering of literacy and numeracy. Some of the more liberal administrations did attempt to develop schools related directly to major economic activities, usually in agriculture, with some success. In Latin America, where schools developed over much longer periods of time than in the rest of the developing world, little expansion took place until it was considered as in the interests of the ruling classes to do so. Indeed, it has been argued that a major factor leading to the enrolment expansion occurring at the end of the 19th century was a response to a perceived threat of social conflict if the more marginal groups were not given some chance to participate more fully in the productive sectors of the economies and enjoy

some benefits from surpluses generated by the export trade (Carnoy 1974).

From this analysis three main types of rationale for educational expenditure are apparent. These are interrelated and are focused on:

- **Economic development** – particularly the supply of adequate numbers of sufficiently educated workers and the effective diffusion of knowledge of productive processes;
- **Socialization** – either into an existing normative consensus (for example, to legitimate differences in socioeconomic status) or to ease the transition to modern values required by changes in the production process; and
- **Political goals** – for example, the education and renewal of a ruling class with a particular ideology.

Rationales in Recent Educational Plans

The dominant rationales for spending public money on education in developing countries over the last 2 decades have focused on the provision of suitably educated manpower for development. Most plans have contained similar statements to that made by former President Echeverria of Mexico in 1973: "The contribution of education to development is obvious. It shows itself in the formation of qualified individuals, in the ability of a people to produce and absorb technological knowledge and in the level of productivity on the job." Increasingly, however, other rationales seem to have been given more prominance in the later part of the 1970s. To examine this in more detail we have undertaken a content analysis of 29 national plans from 16 countries throughout Africa, Asia, and Latin America. We have concentrated on identifying general emphases in the plans and have noted the arguments used to justify the levels of spending proposed. The plans cover the period from 1966 to 1985 and, where possible, at least two plans for each country were examined. Where changes in emphasis over time within countries existed they were noted. It was significant that in none of the plans analyzed were doubts expressed about the major role of education in the development process, although differences in emphasis certainly did exist.

The relationship between plans and what was actually implemented varied a great deal from country to country. Indeed it could be argued that some plans were in themselves no more than facades, although many clearly represented detailed planning much of which was taken seriously. Short of the detailed, country-specific examination of expenditure and educational development that ideally needs to be undertaken, some insights were still possible using the chosen method and time available and could be used to form the basis of a further study.

More than 30 kinds of rationale were identified in the plans and these were distilled into five main categories: manpower development, social equity, nation building, improving quality of schooling, and improving efficiency of schooling (Table 4). Manpower development rationales included general arguments concerned with the need for an educated labour force with the basic skills provided by schools. They also included specific arguments related to the development of particular skills and knowledge (most frequently in science and technology, in agriculture and for rural development activity, and as part of vocational and nonformal training programs).

Social equity rationales were directed toward the need to equalize provision in different areas and among different groups. Further quantitative expansion was often a part of the strategies associated with them. The provision of primary education as a basic human right was included in this category because low enrolment ratios are usually related to inequalities of provision. Although more countries increased rather than decreased the proportion of their public expenditure budgets for primary education (10 increased and six decreased between 1970 and the latest available figures), there was no strong shift in emphasis in the plans toward primary provision. It is in any case difficult to generalize across countries because some have achieved universal primary education, e.g., Sri Lanka (and will, therefore, only increase primary expenditure by increasing unit costs and, hopefully, quality), whereas others are still far from this goal, e.g., Pakistan (and may increase expenditure even though unit costs may fall). In some, concern for social equity in education was focused on higher levels in the system. Some social equity rationales concentrated on the role of education in reducing economic imbalances and saw adequate provision as a key factor in reducing income inequality and occupational discrimination between groups.

Nation-building rationales include a mixed range of arguments. First, there are those that put the case for education as a tool to consolidate national identity. A major function of education is, therefore, to develop and socialize students into a shared set of values and attitudes that will contribute to political stability and development. The stress is on noncognitive outcomes of schooling and emphasizes the importance of such things as tolerance, cooperation, strengthening of national

Table 4. Summary of rationales for educational expenditure found in 29 national plans.

Manpower development rationales
Increase the possession of general skills relevant to development
Increase the possession of skills relevant to the modern sector
Improve scientific and technological capabilities
Provide agricultural development knowledge and skills
Provide rural development knowledge and skills
Increase the prospects for self employment
Provide specific vocational training
Extend literacy to increase productivity and innovation
Develop nonformal education programs
Social equity rationales
Equalize educational opportunities and reduce regional disparities in access
Reduce income inequalities
Reduce occupational differences between groups assuming from educational imbalances
Provide basic education as a human right
Nation-building rationales
Develop and consolidate a national identity
Promulgate a national language
Promulgate a national ideology
Promote self-sufficiency and self-reliance
Reduce cultural and psychological dependency
Strengthen local institutions
Develop individual potentials fully
Localize expatriate manpower
Ensure physical well-being and health
Improving quality of schooling rationales
Improve educational quality through curriculum development
Improve quality through localizing examinations
Improve teacher training
Improve in-service professional development
Improve resources available to teachers
Enhance planning and research capabilities
Increase private education standards
Improving efficiency of schooling rationales
Reduce dropouts
Reduce repetition rates
Increase enrolments
Improve cost effectiveness of teacher training
Improve efficiency of plant utilization

culture, and social harmony between communities. Promulgation of a national political ideology is often a very important part of strategies associated with this rationale, particularly in the socialist states, as is a national language policy. Stress on the importance of establishing self-sufficiency is another dimension of both nation building and manpower development. This may have both cognitive and noncognitive facets. Educational development may be justified to provide skilled personnel to replace expatriates and reduce dependence through the development of local institutions, for example, to undertake research on local agricultural products. It may also be deliberately used as a vehicle to reduce more subtle pressures that maintain European and North American dominance of, for example, culture and consumption patterns. Self-development rationales, which argue the importance of the full development of personal attributes through education, are often tacitly underpinned by the assumption that self-fulfillment and realization of individual potential will result in national development in the interests of the community as a whole.

Arguments for spending to improve educational quality centre around those concerned with improving the relevance of curricula to national aspirations; introducing special programs to improve language, mathematics, and science skills; ensuring that examinations are locally controlled; improving the professional skills of the teacher population and increasing their awareness of new techniques; improving the resources available to schools; and developing the educational research and planning capacity of Ministries of Education. Spending rationales concerned with improving efficiency seek to find ways of reducing wastage in education systems through, for example, reducing dropout and repetition rates, increasing the cost effectiveness of teacher training, and utilizing more fully plant and equipment available through shift systems and loan facilities.

The analysis considered major emphases and sought to examine emerging trends. As anticipated, all the plans included stress on manpower development rationales. Although these constituted the main focus of most of the early plans examined, later plans characteristically included other themes regarded as at least as important. Prominent among these were social equity and nation-building considerations. Those arguments concerned with manpower development were most frequently addressed to providing sufficient qualified entrants to the modern sector labour force, and, thus, concentrated on expansion and improvement in the quality of secondary and tertiary institutions. Stress on science and technical education was more common in the later plans. Education addressed to rural and agricultural development was not as much of a priority in most plans and was most commonly mentioned in African plans. All the plans clearly assumed links between educational characteristics

of the labour force and productivity, although none spelt out these assumptions in other than the most general terms. Frequently, rationales given for spending on lower levels of the education system, which have increasingly tended to be argued in terms of basic education being a human right that should be universally provided, were differentiated in the plans from those for higher levels, which were often directly linked to perceived manpower needs.

The importance of social equity considerations increased in later plans. Most contained provisions to extend primary education to all and reduce regional inequalities of access. Equalizing opportunities for women was explicitly mentioned in only one plan (Peru). In some countries education is clearly seen as a major instrument in reducing income inequality and occupational discrimination between groups, e.g., in Malaysia. In most countries the emphasis on social equity was more concerned with equalizing access to schools than reducing differences in the resources and quality of schools (which may, of course, be important in determining how fair the competition for higher education places and jobs is).

Nation-building rationales were also more common in later plans, particularly those arguments that stressed the importance of appropriate values and attitudes and the goal of self-sufficiency. Not surprisingly, those countries with large ethnic minorities tended to stress these reasons for spending money on education most and clearly saw the education system as a socializing force intended to commit different groups to a single national identity. The stress on the noncognitive outcomes of schooling in some later plans was in marked contrast to the comparatively little emphasis given to values and attitudes in earlier plans among the ones studied. An increasing concern to use educational development to reinforce and invigorate culture was paralleled by more attention to institution building and localization of educated manpower at all levels. Thus, a justification used for spending, particularly at higher levels, has been to provide manpower to lessen dependence on the countries of the North. A complementary aspect of this is the intention to reduce sociocultural dependence on the North and preserve a national way of life.

Most of the countries included in the study have undertaken widespread curriculum reform in the 1970s, and this is reflected in the plans through emphasis on improvements in quality. In some, the continued importance of investment in effective vocationally oriented schooling has continued to be emphasized, in others the stress has been on localizing curricula materials designed overseas. Teacher education and in-service training has also been a growing concern. By the end of the 1970s most plans indicated concern for improving the internal efficiency of their systems. To this end investment took place in the establishment of planning divisions, the training of staff, reviews of teacher training methods, and organizational changes to increase the utilization of scarce resources (e.g., in Sri Lanka). In the plans we examined, there is only limited evidence of the development of integrated approaches to educational development that maximize the interactive effects for development of education coordinated with other programs (e.g., nutrition, family planning).

Contemporary Evidence on the Effects of Education

The range of arguments presented by governments for spending on education are general, political, often rhetorical, and usually based on faith; characteristics that the critics of contemporary education systems are quick to acknowledge. Here we shall attempt to review selectively the research evidence bearing on those arguments. For the sake of argument and presentation we shall assume that most of our readers share our value stance when we say that more income, greater levels of productivity, a more equal distribution of income, greater levels of knowledge, reduced levels of fertility, better health and nutritional standards and higher life expectancy are all desirable development objectives. Therefore, a relation will be considered as positive if it implies that more education leads to more income, a narrowing of income differentials, reduced levels of fertility etc.[1] What we shall be reporting are, for the most part, empirical correlations. We wish to urge caution on the part of those who wish to make the single transition between empirical correlations and policy for two reasons. First, causality is not implied when, for example, education is positively related to income. Just because education is positively related to income does not imply necessarily that more education causes more income. Causal relations are often inferred spuri-

[1]Conventional discussion of education and fertility refers usually to the negative or inverse relation of education to fertility, i.e., higher levels of education are associated with lower family size. This inverse or negative relation is statistical. The implied value or policy stance is positive. A smaller family size is considered best.

ously from empirical statistical relations. Second, the goals of educational spending are never singular. They are multiple and sometimes contradictory. For example, the development of scientific and technological skills might be a major goal of an education policy. We might also observe that boys perform better at science than girls. Does this imply that science education be confined to boys? Of course not, because to do that might well be in conflict with other goals, such as the creation of equality of access to educational provision and jobs.

The dominant rationale lying behind education spending in the 60s and early 70s, which tended to justify and strengthen the increases in education spending witnessed during that time, has been referred to earlier. Education, it was argued, led to an increased rate of economic growth through enhanced labour productivity. Theoretical credence was lent to the belief that increased levels of expenditure on education would lead to increased levels of GNP per capita by the very influential human capital school of thought. Correlations between GNP and educational provision across countries, and within-country comparisons of educational level, occupation, and economic status, were marshaled as evidence for the causal link between education and economic growth. In addition, residual econometric studies attributed large amounts of the unexplained increase in national output over time to improvements in the quality and quantity of human capital. (Schultz 1961; Denison 1962; Harbison and Myers 1964; Bowman 1980). Human and physical capacity, were now given equal importance in providing the key to economic growth and rapid development. These studies were later supplemented by a large number of individual level analyses comparing lifetime earnings with educational levels (see, for example, Psacharopoulos 1973, 1980a). The results were unequivocal. More education is associated with more income. The details of these studies and findings will not be spelt out here. They are well known and have formed the bedrock of much education and manpower planning over the last 2 decades. Generally speaking, the association between education and income has been interpreted as a causal relation where education is the independent variable and income the dependent variable.

The faith in the ability of education systems to promote economic growth became somewhat less optimistic in the late 60s and early 70s when the phenomenon of the "educated unemployed" appeared. Contrary to expectations, the more educated began to display higher unemployment rates than the less educated. More precisely, a curvilinear pattern emerged for some countries. It was the intermediate, secondary level graduates who were more likely to be unemployed than either illiterates and the primary educated or the university educated (Blaug et al. 1969; Turnham and Jaeger 1971; Psacharopoulos 1973). The phenomenon of educated unemployment was linked with fears that the creation of a mass of frustrated educated youth would lead to widespread political instability. Other phenomena also began to create a mood of skepticism about the supposed benefits of education that had been promised by the planners and politicians of the 60s. These included the well known brain drain of high-level, qualified manpower from Third World countries to First World countries (Godfrey 1976); qualification escalation in the labour market where the response to an oversupply of educated labour was a raising of the qualifications deemed necessary for the adequate performance of jobs (Dore 1976a; Deraniyagala et al. 1978); a rural–urban migration attributed to the rural qualified searching for work (Caldwell 1969); an increasing concern with the irrelevance of the curricula of primary, secondary, and tertiary level institutions (Hawes 1979); and a concern that the hidden curriculum of schools that taught students how to pass exams, to be punctual, docile, and obedient was dominating students' learning experience at the expense of later creativity, initiative, and independence in the workplace and the political sphere (Illich 1974; Bowles and Gintis 1976; Dore 1976a). Finally, as if this list of complaints was not enough, doubt was raised about the capacity of the educational system to bring about social and economic equality in the absence of more widespread (and important) economic reforms (Carnoy 1977; Jallade 1977; Colclough 1978; Fields 1980).

These widespread doubts coincided with more general doubts and shifts in the concept of development prevalent in the 60s. The shift away from a sole emphasis on the levels of GNP and economic growth to the inclusion of the distribution of income was reflected in thinking about the purposes of education. The promotion of social and economic equality came to be regarded as a new goal for education systems. Complaints about the performance of education systems are easy to make and provide powerful weapons for the critics. But how detrimental are those effects and do they justify a reduction in expenditure on education?

Manpower Development – Education and Productivity

Does a better-educated person perform a job better than a lesser-educated person, produce more

in the same unit of time, produce better goods in the same unit of time, or respond more creatively to new technological demands? The evidence is scattered and varied, although recently a number of comprehensive reviews surveying much of the available evidence on the link between educational level and agricultural productivity, modern-sector productivity, and urban traditional-sector productivity have been published (Berry 1980; Colclough 1980; Lockheed et al. 1980; Hallak and Caillods 1981).

Education and Agricultural Productivity

The review of farmer education and farm efficiency by Lockheed et al. (1980) provides a very comprehensive synthesis of the available literature. The authors analyze 31 sets of data from Africa, Asia, Europe, and Latin America. They examine the relation between number of years spent in formal education and agricultural productivity, measured either by crop yield or crop yield value.[2] Twenty-five demonstrated a positive relation between education and agricultural productivity, and six demonstrated a negative relation. The authors estimated a mean gain in output for 4 years of primary education of 7.4% i.e., just under 2%/year of education.

A separate analysis divided the data sets into those where the general environment in which the farmer was working was either modern or nonmodern. A nonmodern environment was indicated by primitive technology, traditional farming practices and crops, and little reported innovation or exposure to new methods. A modern environment was indicated by the availability of new crop varieties, innovative planting methods, erosion control, and the availability of capital input such as insecticides, fertilizers, tractors or machines, market-oriented production, and exposure to extension services. The results were impressive. The relationship between education and productivity was much stronger under modern than under nonmodern conditions. The mean increase in output for 4 years of education under traditional conditions was 1.3% compared with 9.5% under modern or modernizing conditions. The contribution of education to productivity under nonmodern conditions then is fairly small, but under modern conditions its contribution is marked.

These findings represent an important step forward in understanding the role of education in promoting productivity. What they suggest is that there is an interaction between education and factors such as the availability of new crop varieties, fertilizer, exposure to extension services, etc. The relationship of education to productivity is strong and positive only when certain levels of these other factors are present. When absent the relationship between education and productivity changes.

An interesting extension to this relationship between educational level and agricultural productivity is provided by studies of agricultural productivity and education in the Philippines by Halim (1976) and in Mexico by Bautista Villeges (1981). Halim found that the more educated not only seemed to produce more from a hectare of land but also made larger incomes in off-farm activities. Bautista Villeges on the other hand found that although farmers with 6 years or more of primary schooling did not produce more per hectare their off-farm incomes were, again, greater.

Education and Modern-Sector Productivity

However, these positive findings for primary education in modern agricultural areas are not yet matched by similar results for modern urban areas. Research on the relation between education and productivity in urban areas poses a number of problems. Perhaps the most obvious one is the measurement of productivity. Income measures are confounded by many factors other than productivity. If confined to more objective measures then we must examine the relation between education and productivity within particular job categories. It becomes impossible to say whether, for example, a lawyer is more productive than a welder and then to compare their educational levels. We can only compare the performance of people performing the same or very similar jobs and must resist the temptation of generalizing these findings across the entire structure of urban jobs.

Comparisons of productivity within jobs have been made by the Institute of Development Studies and are reported elsewhere (Little 1980). Forty-seven microstudies were conducted in Ghana, Sri Lanka, and Mexico on a variety of jobs for which

[2]Lockheed et al. (1980) discuss the problem of comparing studies that examine interfarmer differences in the quantity of output with those that examine the value of output, because a value of a crop is dependent on prevailing price structures. It is unclear, however, how many of the 31 data sets analyzed used quality of output and how many used value of output. In those studies that did measure productivity via output value it is unclear whether price structures have been adequately controlled. Although the studies typically use data from the same locale (in which case one can assume that the price structure is constant) some of the studies clearly compared data and, presumably, values from different locales (Lockheed et al. 1980, p. 113, 116).

general educational qualifications were required. In general, these findings confirmed the earlier findings of Berg (1970) in the U.S., Fuller (1972) in India, and Godfrey (1977) in Kenya. They also confirm the mixed evidence on the impact of teacher qualifications on student outcomes reviewed by Avalos and Haddad (1981). Within job categories the contribution of education to productivity is less than obvious (cf. Echeverria p. 25).

Other reviews of modern-sector productivity fail to find any further studies that measure productivity in a way other than through income. Some studies, however, have attempted to measure productivity at the firm rather than at the individual worker level. Layard et al. (1971), for example, compared firm level output in the electrical industry in England with the proportions of qualified personnel employed. The proportion did not affect firm output but it did seem to be related to technical change. Newer products were being produced in firms with the highest proportion of qualified personnel. Perhaps this is the important aspect of productivity overlooked by previous studies. Although the more educated may not perform well-defined and static job requirements any better than lesser qualified peers, they may have developed the potential for creative and innovative responses to changing economic conditions.

Education and Productivity in the Urban Traditional Sector

An attempt to draw together the research on the contribution of education to productivity in the urban traditional sector has recently been made by the International Institute for Educational Planning (Hallak and Caillods 1981). They review studies on education and entrepreneurship in Latin America and Africa. In none of the studies reviewed was there a clear relationship between educational level and productivity (measured by the firm's income) in a wide range of jobs in the informal sector. Given the highly competitive nature of the informal sector economy, the use of a firm's income as a measure of its productivity is, arguably, valid. However, in some of the studies, it is not clear whether or not differences in capital stock have been controlled.

Of interest, however, is the suggestion from the Ghanaian study that there is first a threshold effect and then a diminishing effect for education. Aryee (1977) examined the effects of no formal education, primary (6 years), middle (10 years), and technical education (15 years) on the gross output and gross earnings of heads of manufacturing enterprises in the informal sector of Kumasi, Ghana. The gross output and gross earnings of those heads of enterprises having no education were compared with those having primary, middle, and technical education separately. In all cases, the comparisons were positive, i.e., the more educated produced more. But only the comparison of middle school proved statistically significant. The next largest coefficient was provided by technical education. The suggestion here then is that the relationship between education and productivity is S-shaped. It is gradual and slight up until middle level when it becomes optimum. Thereafter it levels off.

In summary, the relationship between educational level and agricultural productivity is, on balance, positive under modern environmental conditions. In other economic sectors, however, the data are equivocal. However, it should be pointed out that even though a number of negative findings have been made it does not follow logically that education has nothing to do with productivity. To claim that would be absurd. First, in the modern sector studies it must be recognized that all the people included in the work groups had at least a primary level of education. Second, in most cases the employees did not hold specialized qualifications. Generally, the jobs studied did not require specialized subject qualifications. What the studies do suggest, however, is that a higher level of general education qualifications will not always guarantee a better level of job performance.

Much more research is needed in this area. Even the agricultural studies that show strong correlational evidence do not succeed in determining why it is that education is correlated with productivity in a modern environment. There are several possible hypotheses. It may be because modern environments are themselves linked to particular types of traditional peasant culture. The current studies do not differentiate between cultures, and may well have confounded culture with modern environments. Cultures may vary not only in their response to modern conditions but also in their response to and use of educational provision. It may also be because only when there are enough educated people in a community can advantage be taken collectively of modern inputs that assume literacy. This may be because modern inputs are not provided until there are thought to be enough people in a community with the requisite amount of education. Alternatively, it may be that educated people need support from enough other educated people to gain the confidence to take advantage of such inputs, i.e., one of the major externalities of widespread education may be the provision of positive reinforcement required for individual behavioural change.

More controlled and systematic studies are needed of the impact of education on workers' productivity in the informal sector of the urban economy, in the off-farm sectors of rural economies, and on the impact of education on worker productivity in the modern sector of employment. In all three, special attention needs to be paid to the measurement of productivity and to the measurement of education. In many studies, the education variable is measured simply through the number of years spent in school. Given the extremely wide difference in quality of educational provision this is, at best, a rather crude measure. More important, we have little idea what current education indicators imply by the way of specific abilities. Are the more educated thought to possess more job-specific knowledge than those with less, more general knowledge, more open attitudes, more preparedness to take risks, and more ability to solve new problems? If so, do those abilities and attitudes derive from school experience or out-of-school factors?

Education and Income Equality

A positive relation between individual levels of education and individual levels of lifetime earnings within entire societies is one of the most universal findings in this century. The precise explanation for this correlation is the subject of much controversy (Blaug 1972; Wiles 1974; Dore 1976b). However, neither the correlations nor the putative causal mechanisms that produce them have a direct bearing on the rather separate question of the relationship between the expansion of educational opportunities and the reduction of income inequality. Does an expansion of primary schooling produce a change in the distribution of income in society as a whole? Does an expansion of university education produce a similar change? Does the simultaneous expansion of all levels of education have the same impact on the distribution of income as a serial expansion, which in itself has many possible forms.

Research on education and income distribution is summarized by Fields (1980). Studies generally fall into four types:

- The correlation between average education level and income inequality by comparing information from several countries at single points in time;
- The correlation between the distribution of education and the distribution of income;
- The correlation between increases in the average educational level within a country and increases or decreases in the distribution of income inequality within a country; and
- The correlation between changes in the distribution of educational provision and changes in the distribution of income within a country.

The first two types of study are inadequate because without time-lagged data causal direction cannot be inferred. The widely cited study of Jallade (1977) in Brazil falls into the third type where changes in the overall level of education are related to changes in the distribution of income. In general, an increased level of education has not led to a narrowing of income differentials. These findings are cited widely but their interpretation varies. Simmons and Alexander for example, conclude that educational expansion (or increase in overall educational level) "has served to increase rather than decrease income inequality" (Simmons and Alexander 1980). Others, Carnoy among them, are more cautious about the role of education in the process. Rather than arguing that it is education that has caused the inequality, he attributes the inequalities to the persistent differentiation of job categories in the labour market. The root causes of income distribution lie in the economy not in the distribution of educational opportunities.

It does seem a little odd, in any case, to relate a change in educational level or a change in total education to a change in income inequality. Educational level is not a distributional measure. The same average level can imply marked differences in educational distribution. What is needed is to know whether or not changing the distribution of opportunities can affect the distribution of income. Ideally, changes in educational distribution with later changes in income distribution should be examined. Leonor and Richards (1980) attempt to do this in their study of education and income distribution in Sri Lanka and the Philippines. Although they argue that the overall distribution of work incomes probably owes much more to the distribution of occupation and to factors operating on occupational income independently of educational levels than to the distribution of education their educational data fail to substantiate this claim. They compare the distribution of educational assets and work incomes among workers at two points in time. Unfortunately for their arguments, the distribution of education and income appears to improve over time in both Sri Lanka and the Philippines.

Convincing correlational evidence on the relationship between changes in the distribution of educational opportunities in developing countries and changes in the distribution of income has still to be collected. The nature of that evidence is almost certain to vary across countries. Differences in taxation, income policy, professional association

and union bargaining power, the degree to which professionals are incorporated into an international job market, and different historical traditions surrounding the appropriate price for different levels of qualification are just some of the country-specific factors that are likely to affect the nature of the relationship. Even when that correlational evidence has been established, there will still be controversy over the precise mechanisms through which educational distribution does or does not relate to income distribution. Whatever the evidence and whatever the general hypotheses used to interpret that evidence, sound internal policy implications for particular countries will only emerge through an appreciation of the specific and detailed nature of the range of determinants of income differences and the institutional mechanisms through which education in particular is used to determine those differences. Detailed case studies of specific countries and specific historical contexts form a necessary part of that approach.

Education and its Noncognitive Outcomes

Education has always been seen as a socializer, as a process that encourages desirable social and political attitudes. Certainly there is ample evidence that differences in educational experience are associated with differences in adult attitudes. Inkeles' and Smith's (1974) large-scale survey of the values and attitudes held by 6000 men in Argentina, Chile, India, Israel, Nigeria, and East Pakistan pointed to the very strong association of school experience with modern values and attitudes. Modern men were defined as those who:

> . . .i) take an active interest in public affairs; ii) exercise their rights and perform their duties as members of a community larger than that of the kinship network and the immediate geographical locality; iii) keep to fixed schedules; iv) observe abstract rules; v) make judgements based on objective evidence; vi) defer to authority legitimated not by traditional or religious sanctions but by technical competence; vii) show a readiness to adapt to innovation; viii) display a tolerance of diverse backgrounds of others; ix) display persistent efforts and confident optimism and show little tolerance for fatalism and passivity.

These were the characteristics required of men to work in modern institutions in a modernizing world and formed the modern pole of a modern vs. traditional scale of individual development. Years of school experience proved to be the most powerful predictor of modernity when compared with the effects of factory experience and exposure to the mass media. One year of schooling led to median gains on the modernity scale of 1.6 points for rural-origin factory workers and of 1.9 points for urban-origin factory workers. Others point to a rather different set of attitudes, values, and behaviours associated with school experience. Punctuality, obedience, conformity, a sense of duty, and deference to authority are highly valued in modern, large-scale organizations, and are reproduced rather faithfully in the school. However, attitudes and behaviour such as creativity, curiosity, independence, and cooperative group work are not highly valued in the typical workplace and are, therefore, not encouraged in schools (Illich 1974; Bowles and Gintis 1976; Dore 1976a; Bowles et al. 1978; Simmons and Alexander 1980). Although the empirical base for many of these effects is American, there are a number of sources that offer cross-cultural evidence in support of the general position (e.g., Torrance 1965; King 1969; Brooke and Oxenham 1981; Lewin 1981).

The precise mechanisms through which students do learn these noncognitive attitudes, values, and behaviour are often thought by education policymakers and curriculum developers to lie in the precise content of civics, religion, and social studies curricula. An equally, if not more important, explanation, however, is acknowledged by all the writers cited above. They refer to different aspects of the social organization and meaning of the school experience, "the hidden curriculum." The hidden curriculum refers to a large number of different aspects of school organization and its relationships to the wider economy (e.g., the nature of authority relations between teacher and pupils; the nature of rules and regulations; the time scheduling of learning activities; the relative emphases on cooperative, competitive, and individualistic learning; and the importance of selection mechanisms, etc.). Differences in length of exposure to formal schooling will result in different amounts of experiences of the hidden curriculum, but this is complicated by the fact that different stages of the education system offer different kinds of hidden curriculum and that similar stages will differ as between public and private systems, between urban and rural systems, rich and poor, socialist and capitalist, etc.

The attitudes and values of one group of people will perhaps be especially crucial during periods of economic recession. These are the people in developing countries whose jobs are instrumental in linking international and national economies. We have referred already to the range of pressures likely to be exerted on national resources and priorities during the next decade. As worldwide recession bites deeper, and as hard and software

technologies are exported to the South in a desperate attempt to expand markets, the shrewdness, wisdom, and values of those who provide the entree will be stretched to the full. Terms of trade have to be bargained for, multinational companies have to be dealt with, aid grants and loans have to be won and accounted for, and the sophisticated and often mystifying techniques and concepts of international advisers have to be mastered with confidence. (The success of the Commonwealth Secretariat Technical Assistance Group demonstrates the need for improvements in the negotiating capacity of many countries in the South.) The knowledge required for all of these interactions is considerable. But so too are the commitment and will to ensure that links with the international system are turned to the advantage of the country as a whole.

To what extent can different forms of education, and higher education in particular, affect this commitment and will? Higher education systems in different countries display marked differences in the content of curricula, the social and work relevance of curricula, and in the selection of students who benefit from such education.

The long-term implications of different types of curricula both hidden and overt are unknown. Does a school experience dominated by external rewards like examination success lead to a different set of work attitudes and behaviours from a less examination-dominated experience? Do more modern attitudes really lead to more innovatory behaviours in the workplace? Do competitive classroom atmospheres have different long-term outcomes from cooperative ones? Do work-experience programs at primary, secondary, and university levels make any difference? Do different types of selection systems affect the quality of people who end up in key sectors of the economy? Current research is designed to extend considerably our understanding of the complex set of noncognitive factors that school systems encourage and of the long-term impact of noncognitive attitudes and values developed by the school on work attitudes and values.

Education and Fertility

In a recent comprehensive survey of the evidence, Cochrane (1979) shows that the amount of schooling received by females has an impact on their fertility. The evidence suggests that in low-income countries a few years of schooling (up to 4 years) leads to an increase in fertility. Subsequent years of schooling lead to a decrease in fertility. In high-income countries where the majority of people complete a basic primary education and where the differences that do exist are between levels of secondary and tertiary attainments, more years of education are generally associated with a decline in fertility. A number of studies examined the relationship between female and male education on completed family size. The impact of the mother's education was considerably stronger than that of the father. The evidence also suggests that fertility decline is much more likely to be associated with levels of education when education is widely available.

Two main policy implications are drawn out from the extensive review. The work suggests that fertility levels could be reduced in low-income countries by making primary schooling accessible to all. First, initial increases in fertility will be offset later by subtantial decreases. Second, a decline in marital fertility is more likely to be affected by changes in the amount of female education rather than male education.

The causal mechanisms thought to produce these data are complex. Cochrane (1979) cites three main types of intervening mechanism. First, education affects the biological supply of children. This works in opposing directions. Education raises the age of marriage, reduces the proportion of women who are married, and reduces the chances of pregnancy. However, education also tends to improve health, which in turn increases fertility. Second, education affects the demand for children. Education tends to reduce the desire for a large family and the perceived benefits of having more children. Yet the demand for children might increase through a greater perceived ability to afford children. Third, education affects the use of contraception. A number of different factors are important here — the attitude to and knowledge of contraceptive practices and the nature of husband–wife communication. Improvements in all three would lead to a reduction in fertility.

The reasons why schooling affects fertility more when it is widely available than when confined only to a few are also not clear at this stage. Is it because in illiterate societies attitudes toward modern contraception are negative and educated females lack the widespread support they need to change their behaviour? Or is it because modern contraceptive advice for both men and women is only made available when a society reaches a certain level of literacy? There are many other possibilities.

One final comment about further studies on education and fertility echoes what was said earlier about research on education and productivity. The number of years spent in school is an inadequate

measure of school experience. If we are to understand why it is that schooling makes a difference, we need to get inside those schools and see what is happening in detail. What are children learning about children that is different from what they would learn at home? What are children learning about themselves that is different from what they would learn at home?

Education and Health

There is considerable evidence on the impact of education and literacy on a number of different health indicators — infant and child mortality, life expectancy, and improvement of diet. Recent reviews show a strong correlation across countries between life expectancy and literacy (Cochrane et al. 1980). Moreover, with regard to data relating to up to 29 developing countries, both bivariate analysis and multivariate studies show that infant and child mortality are lower the higher the mother's level of schooling. The evidence suggests that a wife's education has a greater total effect on mortality than that of her husband's but that the combined effects of both parents being literate (as compared to having no schooling) may be such as to reduce mortality by up to 27/1000. Finally, there is evidence that maternal education not only reduces child mortality, but also improves the health of the survivors: children of more-schooled mothers tend to be better nourished. It is also possible that they tend to suffer illness less frequently and less severely than other children, but the evidence for this is as yet insufficient.

Health of course has at least two separate components. The first is physical health encompassing all the indicators mentioned above. The second is mental or psychological health. Limited evidence from some developing countries in this underresearched area suggests that the level of the mother's education does have an impact on the rate and type of psychological development of the child (Levine 1980). Links between psychological development and physical health status can also be charted. Brozek (1978) reviews the available data on the association between diet and nutritional status and the psychological development of the young child although the generally positive causal interpretation of the data has not always gone undisputed (Warren 1973).

As with other research reviewed in this paper the precise causal mechanisms through which education affects health are not well established. In principle, schooling can be expected to affect people's health in two main ways: first, for households at a given income level, schooling should increase their ability to improve the nutritional content of diets and to initiate earlier and more effective diagnosis of illness; second, the increased household income brought by schooling, via its productivity effects, should lead to increased expenditures on food, housing and medical care, particularly among poorer households (mainly because of higher income elasticities of demand for food among the poorer groups), bringing improved family health as a consequence. Thus, it is reasonable to expect better health among both adults and children in more-schooled households (for a theoretical treatment of the plausible effects of education on health see Cochrane et al. (1980)). Most of the available evidence on these matters concerns the relationship between parental education and infant and child health. This is for two main reasons: first, children's health is more sensitive to current diet and surroundings than that of adults, thus the impact of nutritional and environmental disadvantage is more easily measured among this group; second, there are strong grounds for imputing causality between more schooling and better health based upon correlations between the education of parents and the health of their children, in the sense that a causal relation could not, in this case, work the other way around. By contrast, it would be possible to question the direction of causality in the case of correlations between the schooling possessed by adults and their own health.

The Importance of Primary Education

We have reviewed the research evidence on the impact of different numbers of years spent in education, and have argued that although there are many gaps in our knowledge the high priority accorded to spending on education should be maintained. However, that by no means implies that current priorities within education budgets be maintained; that current allocations to primary, secondary, tertiary, and nonformal be maintained; nor that the nature of these levels remain unchanged.

We wish to restate the cases that have been made, although through different routes, for a greater relative investment in primary education in many countries of the South (Jallade 1977; Bowles 1978, Colclough 1980; World Bank 1980a,b). The economic and social returns to investment in primary schooling are very high — relative both to other levels of education and, indeed, to other sectors for a large number of developing countries. Investment in primary schooling may well be the single most effective means of improving the incomes and social outcomes of the poor over the medium to long term. Both economic analysis and

analyses of the distributional benefits of an expanded primary education call for a greater degree of attention to that sector.

But there are at least two other reasons why we would call for increased quantitative and qualitative emphasis of that sector. First, and for reasons already discussed, spending on the primary level of education is likely to be more vulnerable than other levels in times of economic crisis. Increased emphasis for spending in that sector may do no more than offset its vulnerability. A second argument for increased attention to primary education derives from a relatively neglected literature on child development. The nature of early psychological development places certain constraints on the effectiveness of public expenditure on older children and adults. Conversely, certain stages of psychological development offer themselves as prime targets for public expenditure if change is what is desired.

Although we do not deny the great importance of adult education programs, especially for those who have never had the benefit of a primary education, we would suggest that: it is easier to effect general cognitive and noncognitive change among children than among adults, it is essential to provide a rich environmental experience for children at periods when the potential for psychological change is greatest, and that high-quality secondary and tertiary education imposed on a low-quality primary education is considerably less cost-effective than a high-quality primary education followed by medium-quality secondary and tertiary education.

The measurement of cognitive and noncognitive skills is notoriously difficult. Not only is it difficult to develop sensitive and reliable measures it is also rare to find absolute rather than relative measures of development. Physical and economic characteristics such as height, weight, and income are usually measured in absolute terms on a scale that starts at zero and has no upper fixed limited. But most measures of cognitive and noncognitive psychological development are relative. For example an intelligence quotient (IQ) score allows one to conclude that person A with a score of 126 is more intelligent than person B with a score of 109 if they are both of the same age. If the scores of persons A and B remain the same the following year we know only that they have maintained their relative positions. We are unable to say how much intelligence each has gained during the year.

Most measures in psychology are of this relative kind and are concerned with the measurement and explanation of interindividual differences. Psychological approaches that attempt to shift focus away from interindividual differences and concentrate instead on intraindividual changes are notable for their more qualitative approach to measurement (Piaget, Freud, Erikson, etc.). The classic psychological study on rates of developmental growth in both the cognitive and noncognitive domain is Bloom's (1964) "Stability and Change in Human Characteristics":

> . . .in terms of intelligence measured at age 17 at least 20% is developed by age 1, 50% by age 4, 80% by age 8 and 90% by age 13. . .we would expect the variation in the environment to have relatively little effect on the IQ after 8 but we would expect such variations to have marked effect on the IQ before that age with the greatest effect likely to take place between the age of one and five years. . .while the "half development" of intelligence occurs at age 4, the "half development" of height occurs at age 2¼, of aggressiveness in males at age 3, of dependence in females at age 4, and of general school achievement at grade 3, or age 8.

Bloom's policy implications are that the provision of a rich environment for the periods of rapid change is essential. Bloom's conclusion is certainly plausible and is consonant with the importance placed on early experience by countless other psychologists (Freud, Bowlby, Whiting, and Piaget). Bloom's findings are about the life cycle periods of greatest plasticity in an individual's relative performance in tests. However, it is not unreasonable to infer that these would also be the periods when environmental stimulation for the brain would be greatest even if we could measure psychological characteristics on absolute scales. Note, however, that Bloom's findings are American findings about an American context. Without the necessary cross-cultural evidence one does not know whether the curves would be of the same shape in a quite different society with poor-quality formal educational provision.

Most public expenditure programs on education are concerned about both aspects of psychological development — first the overall change that can be effected for all individuals and second the distributional or relative benefits for particular individuals. From the distributional or relative point of view Bloom's findings are compelling. If one is concerned primarily about the relative position of individuals in society then educational policies designed to help the poor groups in society are best implemented at an early age.

How early or how late is difficult to say precisely, but the recent syntheses of evidence on school achievement (Simmons and Alexander 1980; Heyneman and Loxley 1981) suggest that the "half-life" for the development of school

achievement characteristics may be later in Third World countries than in North America. The quality of primary and secondary school in many Third World countries does appear to have a marked effect on the levels of achievement. This general finding stands in marked contrast to the accumulated evidence on school achievement in industrialized countries where differences in achievement are explained more by the home environment than by the school. This is encouraging evidence. The disappointments experienced in America in the 60s and 70s over the less than startling impact of public expenditure on compensatory education programs should not be exported yet to Third World countries. The quality of the school experience can still significantly affect differences between student outcomes (although the potential distributional impact of investment in high-quality primary education on the distribution of school outcomes may well be a transitional phenomenon — and if not made now the opportunity may be lost for ever).

Summary

The research evidence points to a powerful impact of formal education on human development and social organization. The evidence on education and agricultural productivity is strong and positive for those agricultural sectors where complementary attempts are made to change the farming environment by the provision of roads, access to marketing facilities, fertilizers, better crop varieties, etc. It is weak for the nonmodernizing agricultural sector. The impact of education on modern-sector and urban traditional-sector productivity is much less clear. Research in this area is hindered because of the difficulties involved in measuring productivity rather than income. The research evidence on the empirical link between educational provision and income distribution is also somewhat equivocal at this stage. The difficulty of collecting good-quality education and income data spread over long periods of time hinders the policy recommendations that can be made in this area. The evidence on the relationship of education to physical health, nutrition, and fertility is considerably better and more consistent. In general, more educated people, especially women, tend to have fewer children, have better health, and better nutritional standards although there are important qualifications to this near universal trend. Finally, education does seem to be very effective in the development of certain sets of social, political, and personal values. Whether one considers those values to be desirable, however, depends ultimately on one's definition of what constitutes a desirable form of economic and social development.

Conclusions

We have examined the evidence on the financing of education in the recent past. Although the most recent evidence available on proportions of government expenditure devoted to education does not suggest that expenditure has decreased, we have argued that the 80s and 90s could well see a change of climate in both the resources and the commitment to spend on education.

We argued that state intervention in the provision of education has usually been greater in developing countries than in the early industrializing countries of the North. For this reason and because of a dominantly instrumentalist view of the purposes of educational expenditure, educational budgets in the South may be even more sensitive to changes in economic climate than in the North. Differences in past experience between countries in the North and the South suggest that monetarist policies currently used in some countries in the North to justify reductions in educational expenditure are not necessarily appropriate for many countries in the South. Differences in past experience also suggest that the consequences of reductions may be very different in the South — as indeed they were for expansions.

We also traced the range of rationales that have been used to justify educational expenditure. The historical analysis pointed to three main goals — economic development, socialization, and political goals. A survey of 29 national plans over the last decade from 16 countries throughout Africa, Asia, and Latin America reinforced the importance of these goals. In addition, however, social equity concerns were more apparent as were concerns with the consideration of the educational process itself through improvements in the quality and efficiency of schooling. The more detailed analysis of changes in plans over the last decade showed a shift away from the dominant stress on manpower development apparent in many of the plans of the late 60s and early 70s. Prominent among the new themes were social equity and nation building (although equalizing opportunities for women was mentioned explicitly in only one plan, Peru). A stress on science and technical education was more common in later plans.

In our research review we attempted to assess the evidence relating to the substance of the arguments used in national plans to justify educational expenditure. The overview of the research evidence on the impact of education on development goals

pointed to the complexity of that impact. There was considerable evidence for the positive association between education and many development goals, although there was also evidence that education was not always a sufficient condition for change. A common theme running throughout, however, was that of the need of integrated investment policies. In the 50s and 60s education was seen as one of the single most important variables for effecting economic growth. Over time, education came to be relied on as a force not only for growth but also for social mobility, income redistribution, reduction of fertility, etc. More recently it has become clear that education is not a sufficient condition for either of these two sets of changes to occur. There are enough zero or negative correlations in the literature to substantiate this. On the other hand, there are enough positive findings to suggest that education interacts (in the statistical sense) with other factors, which in combination produce an impact on productivity or on attitudes.

Increases in agricultural productivity were more likely to be related to increases in education in modern environments where other inputs were available to farmers. In nonmodern environments education was not related to agricultural productivity. Increases in the modernity of attitudes were more likely to be related to increases in education in urban areas than in rural areas. Reductions in marital fertility were more likely, in the long term, to be related to increases in education for females rather than males, and in regions where schooling is generally available to a particular population group rather than when it is available only to a few people. Reductions in infant and child mortality are more likely to be associated with efforts to improve the education of women rather than men.

Education will be more or less effective when other conditions exist. This does not imply that less money should be spent on education. On the contrary, it suggests that money spent on education should be integrated with money spent on other sectors. Education by itself is unlikely to create productive employment. It can certainly contribute to increases in productivity and employment generation provided other conditions are supportive. Equally, without it, investment in other sectors will be subject to rapidly diminishing returns.

However, the review of the literature also pointed to our ignorance about precisely how education is related to other development outcomes, and a number of areas where fruitful research could be done were indicated. In the area of education and productivity, more work could usefully be done on productivity in all economic sectors taking care to develop valid measures of productivity and of education. The education variables should attempt to specify what kinds of abilities and attitudes are thought to be developed (or screened for) by a school experience that may or may not contribute to productivity on the job. Further analysis of education and agricultural productivity data could usefully be done to examine more closely the characteristics of modern agricultural communities. Do those communities that respond to new crop varieties also respond to education initiatives? Conversely, are there some communities that resist both? If so, how can the latter be encouraged to develop?

In the area of the relationship between educational distribution and income distribution we need, first, better data and, second, more precise hypotheses about how differences in educational assets do or do not lead to differences in income. However, attention should be paid to the importance of country-specific factors in the mediation of that relationship (e.g., incomes and tax policies) and the importance of factors outside the education system and common to groups of countries (e.g., the degree of job segregation in the modern sector) in the determination of income distribution.

We concentrated on the accumulated evidence on education and income distribution. Income distribution is just one aspect of a broader set of equity concerns. Equality of income does not necessarily imply equality of power, of status, or of prestige. The implications of change in educational distribution for each of these is little understood in developing countries.

Research on the noncognitive outcomes of schooling is relatively diffuse. Measurement of noncognitive outcomes is difficult and may explain why the development of work in this field has been slow. This work is, nonetheless, important. The attitudes and motivations of people may explain as much if not more of the differences in development patterns than of the differences in knowledge. The attitudes and motivations developed in the education system may be a necessary, although not sufficient, condition for certain types of work organization attitudes and values. To what extent do different school systems have different hidden curricula? To what extent do these lead to different sets of work attitudes and behaviours?

Research on education and fertility and health is more readily available in that a number of major attempts have been made to pull the work together. However, the precise causal mechanisms through which education is thought to have its effect are still unclear. Does education have an effect through

specific knowledge imparted through the formal curriculum of schools and/or through attitudes to the self and others imparted through the hidden curriculum and/or through a different kind of approach to out-of-school learning encouraged by exposure to general formal education?

Research on the periods of greatest plasticity in psychological development in developing countries is scarce. The evidence from North America points to the importance of the first few years of school experience for the relative performance of individuals. In developing countries, the critical period might extend upward a few years but the primary years remain crucial for determining who, eventually, will end up in different positions in society and the economy. The only way to chart the psychological development of children both in and out of school is through longitudinal studies or extensive matched cross-sectional data. Linked with this kind of research enterprise is the need for further work on the qualitative changes that can be made in school environments and their influence on the absolute and distributional dimensions of school outcomes.

In most developing countries, public expenditure per pupil at all levels of education will grow only very slowly in real terms. Under these circumstances, the question of how best to improve the quality of primary schooling becomes very important. Should the priority be to increase the number of trained teachers or to improve the quality of their training? Should it be to abandon double-shift teaching or to reduce average class size? Should it be to increase the quantity or the quality of school books and equipment? Should it be to reform the examination systems that so dominate the goals and motivation of students and teachers? Should it be to improve feed-back mechanisms whereby teachers can be helped positively to improve levels of learning of their students? There are examples of all these options in different Third World countries, although they have not been subjected to evaluative research, even though they represent critical decisions faced by most ministries of education at the present time.

We have argued that the current worldwide recession is likely to threaten spending on education in many Third World countries during the 80s. We do not know of course whether things will turn out in this way. Some countries' education budgets are likely to suffer more than others. Close monitoring of these budgets, and, in particular, of shifts in emphasis in spending between the different levels of education, will aid our understanding considerably.

The fundamental concern of most critics of school systems in the Third World has been with the quality of student learning. Because that quality is generally low, however, it is not usually implied that formal education systems be scrapped or reduced in size. On the contrary, most would argue that ways must be found of using education systems to develop more effectively the powers of initiative, independence, creativity, skill, and competence. To do these things effectively will require more, rather than less, expenditure. Thus, few critics of contemporary Third World educational development would argue that expenditure on education should be cut and even the most ardent critics of education systems in market economies usually do not advocate the abolition of formal education. Even then, education is seen as the main road to salvation, although frequently it is conceived of as requiring a transformation in emphasis and content often in conjunction with more widespread economic and social reforms going well beyond education itself. Planners would do well to look beyond the physical plant of schools and university buildings to the wider society to see where changes can be made that would support current efforts of education systems to promote change. Equally, planners would do well to look beyond the physical plant of schools and university buildings and take a closer look at what is happening inside them. What are children learning about authority, about personal relations, about initiative, about solving problems collectively, about production skills? No amount of curriculum rhetoric about moral and political values will substitute for a learning experience in which those values attain some meaning, and no amount of curriculum rhetoric about scientific methods will substitute for the experience of solving scientific problems.

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The Political Economy of Financing Education in Developing Countries

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This paper addresses the issues of educational financing in developing countries from the perspective of political economy. It suggests that the technical discussions that have dominated previous work on this subject, and that have focused on education's contribution to economic growth and/or to equitable income redistribution, provide neither an adequate justification for the rapid expansion of education since the 1950s nor a sufficient analytical framework for understanding future trends. Another focus, social demand, must also be discussed. Only in this way can both past and future decisions regarding the expansion and financing of education be understood in their social, political, and economic context.

The analysis is developed in four parts. The first two provide a relatively comprehensive review of the current literature on education in relation to the two dominant foci of past arguments for increased educational expenditure: growth and equality. Although there is some evidence that suggests that education has made some contributions in each of these areas, our analysis indicates that those contributions have been far less than originally thought.

The third section discusses some of the issues raised by a new focus on social demand. For whatever reasons, some of which are most likely related to the belief in education as a means to growth and equality, education has become a symbol of mobility, status, and progress for parents and students in developing countries. The provision of such highly valued education has become one of the most important means by which the governments in those countries have established a sense of legitimacy in the eyes of their citizens. Thus, the ability of governments to finance the ever-growing demand for education becomes an issue of critical political importance. Using the available data from six countries, the section describes the results of an initial study of the ability of each government to meet the demands for (a) providing universal primary education, (b) improving the quality of primary education, (c) providing universal secondary education, and (d) expanding higher education at the same rate they have over the past decade. The concept of a legitimacy gap is introduced as a quantitative indicator of the difference between expenditures (both current and projected) and the level that would be necessary to meet the four demands. The study concludes that, in 1978, the legitimacy gap was significant for most countries in each of the four areas, and for all countries when the four areas were considered together; in 1988, the projected gaps will be slightly less, but still significant in almost every case, and even these slight improvements are highly dependent on maintaining current gross domestic product growth rates.

In the final section, the dilemmas involved in attempting to close the legitimacy gap are addressed as political issues. Options for raising more funds, such as progressive taxation and student fees, are briefly assessed. Options for decreasing costs, such as nonformal education and educational technology, are also assessed. The paper concludes that none of these alternatives is as promising as advocates claim, and each would involve significant political conflict.

The third and fourth sections highlight the need for much more reliable data and more detailed studies on the politics of educational decision-making and financing in specific case countries, particularly on the demands made by and the actions of different social groups in different countries. The general implication for international agencies and others concerned with supporting expansion of education is: agencies should acknowledge that all financing decisions are made in the context of conflicting interests and that there is inadequate data to draw conclusions about the probable effects of the various financing options before decision-makers; therefore, to whatever extent possible, agencies should provide aid to assist those groups least represented by society to become more directly and powerfully involved in the decision-making process.

Educational finance is an issue that pervades all educational planning, yet when most analysts discuss the cost and financing of education, they treat these issues largely in technical terms, removing them from the political and social climate in which education is situated. Spending and investment decisions are seen as derived from projections based on mechanistic trends or even educational efficiency rather than as a function of political movements and/or economic and social change.

How much a nation or a community should spend on schooling, what kind to provide, and who should pay for it are indeed financial questions. But

they are also political questions, involving decisions about more rapid economic growth, the distribution of benefits from growth, and the distribution of costs of educational expansion among different groups. In this paper we relate cost and financing of education in developing countries to patterns of educational development as they, in turn, reflect political and economic decisions about growth and distribution and a commitment to quality and equality in education. This is what we mean by the political economy of financing education.

Educational investment has developed a tarnished image as an economic development strategy in the last decade, largely because the massive educational expansion of the 1960s and 1970s in the developing countries was not matched by a concurrent rapid rate of economic growth. Indeed, in the 1970s, as more and more young people graduated from secondary schools and universities, urban unemployment began to envelop not only the unschooled, but also the highly educated. Furthermore, the expansion of general education and of schooled labour did not seem to make government bureaucracies more efficient or even raise the quality of the educational system itself. Rather, rapidly growing populations combined with government commitments to education, placed an increasing burden on the public treasury, and this burden limited options for other types of infrastructure investment. By the early 1970s, Robert McNamara, then President of the World Bank (World Bank 1974, p. i), stated:

> Developing countries have greatly expanded their educational systems over the past quarter of a century. But much of the expansion has been misdirected. The results are seen in one of the most disturbing paradoxes of our time: while millions of people from among the educated are unemployed, millions of jobs are waiting to be done because people with the right education, training and skills cannot be found.

At the same time, planners in the developing countries and the international agencies were quick to recognize that expanded education was more than just an investment in increased economic growth. It also was a means to greater equality of opportunity and more equal income distribution in societies marked by great disparities. Indeed, the 1980 World Bank "Education Sector Policy Paper" (World Bank 1980b, p. 78) argued that educational opportunities should be equalized "in the interest of both increased productivity and social equity."

Both these social goals for educational investment — economic growth and more equal opportunity — are incorporated into a dynamic of educational expansion and spending that depends more on the symbolic value of education than any clear and present growth, mobility, or distributional effects that education might have. Thus, the financial implications of this dynamic lie much more in the politics of educational expansion than in education's direct economic effects.

Education, Productivity, and Economic Growth

In the mid-1950s, the interest in expenditures on education as a possible source of increasing output grew out of the failure of traditional theories of development (in which inputs were defined as homogeneous labour and capital) to explain more than about one-half of the total increase in economic output during a given growth period. The early works on education and economic development, therefore, concentrated on establishing education as an input into the growth process — a form of increasing the productive "quality" of labour. In the earliest work by Robert Solow (1957), the "residual" of unexplained growth was ascribed to technological change, but later this general term was broken down to include improvements in the quality of capital (Denison 1962; Griliches and Jorgenson 1966) and the investment in human beings (Schultz 1959, 1961). In a series of pioneering studies, Schultz developed the idea that expenditures on education were not primarily consumption but rather an investment in the increased capacity of labour to produce material goods. Hence, formal schooling was at least in part an investment in human capital, an investment with economic yield in terms of higher product per worker, holding physical capital constant.

At the same time, Denison applied measurements on investment in human capital in an effort to account for unexplained growth in the U.S. economy. Denison found that expenditures on education seemed to explain about 23% of the 1909–29 growth rate in per-person employed income and 42% between 1929 and 1957. Increased capital per worker accounted for 29 and 9% of the growth rate in the two periods. In more recent work (Denison 1979), he estimates that increased education of the labour force explains 21% and increased capital per worker 17% of growth in the period 1948–73. Denison concludes in all these studies that additional education played a significant role in increasing U.S. material growth, particularly after the first period of rapid physical capital increase.

Human capital theory ultimately provided a rationale for a massive expansion of schooling in the developing countries: if expenditures on such schooling contributed to economic growth, educational planners argued, government could satisfy demands for schooling by its population while contributing to the overall material growth of the economy. Further rationale was provided by another type of study. Frederick Harbison and Charles Myers (1964) argued that secondary and higher education per capita were highly correlated with per-capita income. Therefore, they reasoned, increasing the per-capita level of intermediate and higher education would lead to higher levels of income per capita.

In the second wave of empirical work on education as human capital, the cost of investment in education was related to the increase in income (used as a proxy for productivity) realized, on average, by individuals in the labour force. This rate of return on educational spending showed how much education was worth economically compared with other possible public and private investments in a particular economy. As a subproduct of these studies, some analysts like Carnoy (1967) for Mexico and Hanoch (1967) for the U.S. measured earnings functions that relate individual earnings to years of schooling, age, and other variables. Such functions, unlike the earlier rate-of-return studies, enabled analysts to get at the part of earnings differences that could be attributed directly to schooling differences, correcting for on-the-job training and parents' social class background.

Denison had introduced the concept of correcting earnings differences for nonschooling, nontraining variables like intelligence quotient (IQ) by adjusting his estimates of such differentials by an alpha coefficient of 0.6; this assumed that 60% of income (productivity) differences was due to schooling alone. Later studies by sociologists like Blau and Duncan (1967) and by economists like Griliches and Mason (1972) and Hause (1972), using different statistical techniques, tended to confirm that, of the explainable differences in earnings among individuals of the same race and sex, the part explained by schooling was the largest. Eckhaus (1973) and Chiswick and Mincer (1972) in the U.S., and Thias and Carnoy (1972) in Kenya showed that the employment factor was also crucial in understanding why individuals earned differentially. Correcting for the differential unemployment rate among individuals with different levels of schooling, these studies indicated that the role of schooling in explaining earnings was greatly reduced, particularly at certain levels of schooling. Their studies cast some doubt on the previously high estimate of the productive value of schooling, because annual income is a function of the amount of time worked and wages paid per unit of time. It is the latter that supposedly reflects productivity differences.

The implication of these studies was (like Denison's work) that income differences among groups of people with different amounts of schooling in the labour force could be used to estimate the expected value of education, not only to the marginal individual taking more schooling, but to the aggregate economy in the form of increased output produced by those with more education. These economists were arguing that increasing the level of education increased the level of material output; for every additional dollar, peso, or rupee invested at the margin, the gross national product (GNP) would increase approximately by the rate of return to education times labour's share in GNP.

Psacharopoulos' work (1973) summarized most of the rate-of-return studies done in the 1960s and early 1970s. He concluded that the economic payoff to investment in education (as measured by income differences) is substantially higher in the developing countries than in the highly industrialized ones and that the most profitable level of education in most countries is primary schooling, whereas higher education shows a much more modest rate of return, particularly in the higher-income countries.[1] Furthermore, he showed that the returns to investment in human capital are well above the returns to physical capital in developing countries, whereas they are much closer to equality in the high-income economies. Based on these data, he suggested that developing countries should put more emphasis on investing in human rather than physical capital and in primary schooling rather than higher education. So for Psacharopoulos, investment in education, especially primary and secondary education, makes good economic sense; such investment contributes substantially to the growth rate of output in developing countries.

All these studies indicated that the payoff to formal schooling as it exists in developing countries is positive and even large, implying an important contribution to economic growth. Was this research correct? Many analysts thought it was not. The concept that the correlation of schooling with earnings reflects a causal relation between school-

[1]Psacharopoulos found the following average private and social rates of return for developing countries (the number of country observations are in parentheses): private rate, 29.6 (10), 18.5 (14), and 22.0 (14); social rate, 18.4 (16), 15.2 (18), and 12.4 (8) for primary, secondary, and higher, respectively.

ing as an investment good and the higher productivity of labour was not universally agreed upon. Some economists felt that the observed correlation could be explained by the concept of schooling as a consumption good; individuals with higher income tend to demand and purchase more and better schooling for their children. According to the consumption interpretation, more schooling does not result in more income, but rather more income results in more schooling consumed (Hirsch 1959; Shapiro 1962). Thus, schooling was not seen principally as a policy variable in increasing economic growth.

However, more sophisticated statistical analyses, Blau and Duncan (1967) and Duncan et al. (1972), for example, contended that, even when parents' education and occupation (highly correlated with family income) are accounted for, an individual's schooling is still a significant explanation for his/her occupational position and earnings. This implies that additional schooling is a factor in additional earnings even when the possible correlation between socioeconomic family position and schooling taken by children is accounted for. Although this does not prove that schooling is not primarily a consumption good, it strengthens the argument that there is a direct relation between schooling and earnings (more schooling leading to higher earnings) that has to be explained in some other way.[2]

For example, Carnoy (1972) corrected the Psacharopoulos average rates of return using a variation of Denison's alpha coefficient from Carnoy and Thias' results in Kenya, results that were corrected for an individual's socioeconomic background and employment probability. The alpha coefficients vary by schooling level in developing countries: 0.4 for primary, 0.8 for secondary, and 0.9 for higher. The "corrected" results are the following: a social rate of 7.0 for primary, 12.2 for secondary, and 11.4 for higher. These results indicate how unreliable the rate-of-return estimates can be as indicators of the contribution of schooling to growth. For if much of the return to schooling is due to social class differences between less and more educated persons and as an allocator to employment (versus unemployment), it may very well be that even without formal schooling, individuals belonging to a higher social class would find their way into more "productive," higher-paying jobs, whereas individuals belonging to a lower social class would get the lower-paying, less-productive jobs. Individuals from a higher social class might very well be less productive without schooling than with in such a situation, but they would still have higher productivity and earnings than individuals from a lower social class even if they did not go to school. That is what these corrected rates reflect.

In addition, rates of return change over time. As Woodhall (1968) has pointed out, age−education −earnings profiles, which form the basis of rate-of-return calculations, reflect past and present supply and demand conditions and not necessarily future conditions (also Eckhaus 1973). Nevertheless, there appears to be a pattern to changes in rates over time (Carnoy 1972; Carnoy and Marenbach 1975). Social rates to investment at lower levels of schooling seem to decline first, then the rates to progressively higher levels. This may result from the adoption of increasingly sophisticated technology over time, requiring increasingly higher levels of schooling for labour hired to work with that technology; from downward substitution of higher educated for lower educated labour as the quantity of schooling in the labour force expands relative to output growth; from the absolutely greater expansion of lower levels of schooling relative to higher; from lower social class youth entering first lower then higher levels of schooling; or it may result from greater political power of higher educated labour to protect its earnings. Whatever the reason, as schooling expands the (uncorrected) rate of return to primary school investment appears to decline before the rate to secondary education, and the secondary rate before the rate to higher education.

Another discussion that questioned the contribution of schooling to growth revolved around the earnings/productivity relation. Given that more schooling leads to higher earnings for the individual, does this mean that increasing schooling produces higher productivity? Do earnings equal

[2]Samuel Bowles (1972) has argued that such studies generally underestimate the effect of social class on present earnings and occupational status relative to the effect of schooling on those variables for two reasons: (a) there is a bias in retrospective surveys of respondents regarding their parents' education and occupation, increasing the error in measurement and reducing the correlation. People with high education tend to remember their parents as having less education and lower-status occupations than they actually had, and those with less schooling tend to remember their parents with higher education and status than they actually had, thus reducing the variance in social class relative to the variance in the education of the interviewee; (b) the use of parents' education and occupation is only a proxy for the parents' class position; parents' income and wealth are better predictors of the effect of social class and a person's earnings than parents' education or occupation. Indeed Sewell and Hauser's (1974) work on Wisconsin data bears out this second contention.

productivity? Vaizey (1961) and others were willing to concede that the individual saw schooling as an investment; that is, that the student correctly expected to earn more if he/she went further in school, but that this did not necessarily imply that schooling actually produced more aggregate output. Education could be an allocator of the share of output going to labour, assigning more earnings to those with more schooling and less earnings to those with less, even though the marginal product of both groups could be approximately equal. In that model, higher investment by society in schooling would not necessarily produce more goods for distribution among the labour force, but the pattern of investment among individuals and groups of individuals would be important in determining who received the share of output going to labour. Neither would a higher average level of schooling lead to higher income per capita.

Support for this argument came indirectly from two sources. The first was from the work of Ivar Berg (1970), followed by Fuller (1970) on India, showing that within carefully defined occupational categories schooling and physical productivity of workers were not significantly correlated. The second was Thurow's study (1968) of the relation between the marginal productivity of labour as derived from aggregate production-function estimates and wages paid to labour. Thurow's comparison indicated that in the United States workers received, on the average, earnings less than their marginal product (on the average 63% of productivity), whereas workers in less union-organized and lower average-education sectors (those nonfarm employees not in manufacturing, for example) received, on average, even less earnings relative to marginal product (60%) than workers in manufacturing (80%). The Berg, Fuller, and Thurow studies, of course, only suggested that the correlation between schooling and productivity, if it could be measured properly, would be less than the correlation between schooling and income. If the suggested relation were borne out, the contribution of schooling to growth, by implication, is less than indicated by estimates based on earnings differences.

However, Berg's, Fuller's, and Thurow's work have methodological problems serious enough to cast doubt on their conclusions. Berg's and Fuller's correlation of productivity and schooling within an occupation yields good productivity comparisons in the sense that output per worker can be measured in physically comparable units, but it necessarily excludes those workers at the lower end of the occupation's schooling spectrum who are in lower-paying and, supposedly, less-productive occupations where the average level of schooling is also lower. At the same time, it excludes those workers at the higher end of the occupation's education spectrum who are in higher-paying, more productive jobs where the average levels of schooling are also higher. Put another way, within a single occupation we will usually find workers with a fairly wide range of schooling but a fairly low variance of income relative to the overall earnings variance in the labour force. We have to assume that the workers with much less or much more than the occupation's average schooling are extraordinary in some way that may be related to their productivity and earnings, but that is not picked up by the schooling variable. Because, on average, those with different amounts of schooling are in different occupations producing different goods, it is virtually impossible to estimate the relation between physical productivity and schooling. On average, people with more schooling receive higher incomes than people with less schooling because they produce goods that are defined as being worth more — defined by those with the income to spend on those goods.

Thurow's methodology is also questionable. His results indicate that even in terms of the value of goods produced, more-skilled and better-organized workers are doing better relative to their marginal product than less-skilled and/or less-organized workers. But he, like Denison and Solow before him, faces the counter argument that estimates of aggregate production functions are not a meaningful reflection of what is happening in any real economic sense (see Blaug 1974). Thurow's estimates of marginal productivity may or may not measure the productivity of different groups, and, hence, his comparison with average wages may or may not be valid.

Furthermore, a more recent study measuring the productivity to education relationship in agriculture suggests that primary education for farmers does contribute to increased productivity (Lockheed et al. 1980). The authors test three hypotheses: (a) higher levels of formal education increase the farmers' efficiency, (b) education has a higher payoff for farmers in a changing, modernizing environment than in a static, traditional one; and (c) exposure to extension services improves farmer productivity. Using 37 data sets from 18 studies in 13 African, Asian, European, and Latin American countries, they find that the gain in production for 4 years of schooling (considered the threshold level) averages 8.7%. When the data are weighted for reliability across tests, the average gain falls slightly to 7.4%. Hypothesis (b) is also confirmed: in modernizing environments, the average gain is

9.5% for 4 years of schooling, and in nonmodernizing environments, only 1.3%. The results for the third hypothesis were inconclusive. These results are also borne out by Lecaros in Colombia (see Carnoy et al. 1978).[3]

In later work, Thurow and Lucas (1972) contended that education and training are not important factors in determining potential productivity of workers because productivity is an attribute of jobs, not people. Jobs associated with a lot of modern capital equipment are high productivity jobs, and workers queue up for them. Once a worker is hired, the cognitive skills necessary to raise the worker's productivity up to the productivity of the job are learned through formal and informal training programs. The chief criterion that employers use in selecting workers for jobs is trainability: those who possess background characteristics that employers feel will reduce training costs go to the head of the queue and receive the best work.

The queue concept of education in the labour market sees the correlation between schooling and earnings as unrelated to any specific productivity-raising knowledge that schooling imparts to workers. Rather, schooling provides a convenient device for employers to identify those workers who can be trained more easily, based, it seems, primarily on noncognitive values and norms acquired by students as they go further in school. Is this a contribution to worker productivity? Or is it a subsidy to employers to make it easier for them to select workers for various jobs — a transfer of resources from the public sector to owners of capital?

Similarly, Arrow (1972) suggested that schooling may act as a mechanism to screen desirable from less-desirable employees. The screening hypothesis and the queue concept both implied that education does not contribute directly to economic growth but serves as a means to sort people for jobs, higher- and lower-productivity jobs paying higher and lower wages. Although some economists felt that screening does not contribute to higher output because it makes employers' labour search costs lower, Arrow showed that such a transfer to employers makes the economy no better off. This leaves the discussion back at the level of determining whether there are persuasive reasons to believe that education does contribute directly to higher worker productivity or whether it is primarily a sorter of individuals for differentially paying jobs.

The argument for schooling contributing to growth lies in the productivity-raising skills that schooling allegedly provides to students as potential workers. Unlike the queue theory, in which more schooling makes students more trainable as workers, the screening argument rests on the certificates awarded to students as they go further in school. For the screen to function, some types of criteria have to be used, but these need not be cognitive, productivity-raising, or even trainability ones.

Bowles and Gintis (1976) took another view. They suggested that young people are allocated to different occupations and earnings in large part on the basis of parents' social class (income, occupation, education), and that the principal function of schooling is to legitimize this reproduction of the unequal class structure through a facade of meritocracy. Thus, the Bowles–Gintis view contended that schooling is more than a screening device for labour as an input to production (a benefit to employers as entrepreneurs); it is an institution that serves employers' class interest (as contrasted with labour's class interest or the particular interests of individual employers searching for particular skills) in perpetuating the capitalist social hierarchy. In this view, the growth function of schooling is not rejected; Bowles and Gintis argue that there is a cognitive component to schooling, but that this cognitive component is overshadowed by the importance of class values and norms in school output and in assigning groups of individuals to various economic roles.

Carnoy (1974) went one step further; he suggested that if the function of schooling (as an ideological tool of the state) is to reinforce and reproduce an unequal social structure whose economic system places priority on distribution of power (profit) and hierarchical rules rather than on the maximization of output, then this may have a slowing effect on economic growth and social development, especially in dependent developing countries. He argued that in such dependent societies, the expansion of schooling is organized to reproduce a social structure and division of labour that is very much tied into the economic and social needs of the highly industrialized countries and that such reproduction reduces the possibilities of optimum social and economic development in terms of the country's own human and physical resources — precisely the opposite of Ricardo's

[3]However, Lecaros' results may measure increased market orientation rather than increased productivity: education may make farmers more market oriented rather than home consumption oriented, so higher measured income of the higher educated may not be measuring higher productivity but rather the fact that the more educated take more of their output to market rather than producing for home consumption.

theory of comparative advantage.

Where does all this leave us? Does schooling contribute to increased output, or does it allocate people to jobs with higher training, productivity, and earnings possibilities? Is it a subsidy to employers? Does it legitimize an unequal social structure and, hence, contribute to higher output through helping to produce acceptance of unequal work roles and, hence, political stability, or to lower output through legitimating a profit-making pattern of development (hence capital accumulating) that is less than optimal for a particular society?

We can imagine how schooling can contribute to economic growth; the breaking of abstract codes in a systematic way (reading and arithmetic) allegedly helps develop deductive and inductive logic that, in turn, helps people solve problems associated with production. More important, even though such logical capability may not contribute directly to increased production, it may make the physical capital with which people work more productive because workers probably would be more aware of the nature of, and the care required by, machinery. More schooling — especially centrally controlled, or common, schooling — also probably makes for better communication of instructions, blueprints, and so forth among workers and between workers and supervisors. If people have shared a common communicative experience with a common knowledge base (the school), workers from different family backgrounds, age groups, or cultures should be able to relate at least at that common experiential level. Welch (1970) suggests that the main contribution of education in production is yet different; it makes producers better decision-makers in the allocation of resources, including time. Welch's model implies that the greater the decision-making associated with a job, the greater would be the potential effect of education on productivity. This insight seems to be borne out by the Lockheed/Jamison/Lau results on farm productivity.

Furthermore, recent research, such as that by Cochrane et al. (1980), contends that higher maternal education is associated with child health, either as measured by nutritional status or infant/child mortality. Because child health is positively correlated with performance in school (see Colclough 1980) and health is undoubtedly also connected with adult work productivity independent of schooling, we would argue that a more highly educated female population has at least second-generation effects on labour productivity.

We can also understand the basis for the screening or legitimation argument; there is, after all, no way to prove that those with higher wages are capable of producing more than those with lower wages independent of the job they hold and the goods they produce. Most jobs require skills that might easily be learned by anyone in a few months or a year independent of the amount of formal schooling he or she has. It is a persuasive point that more schooling requires the expenditure of real resources so that society would be wasteful and irrational to spend such resources if they did not result in some positive return. But the return might not be in the form of higher total output; "society" could be viewed as a dominant subset of the population, and that subset might profit from a shift of product among groups, such as between those who are less and those who are more educated or between labour and those who own capital or manage it. Schooling, in the screening argument, helps perform this shift, and the return to schooling may represent not a net contribution to total output but the transfer of labour's product from the less schooled to the more schooled. Thus, we would observe a positive return (as measured by earnings differences) to expenditures on schooling as a result of people with lower wages being paid less than their product and people with more schooling and higher wages being paid more than their product. Schooling, in such a case, would not contribute to a net increase in total product. Higher schooled groups would have simply succeeded in using the formal school system to shift consumption power from the less-schooled to the more-schooled through wage and incomes policies.

On the other hand, the increase in schooling in the labour force may be a means to shift income from capital to labour as a whole. Again, this would not affect factor productivity but only the wage bill relative to returns to capital. The rates of return to schooling may rise if those with more schooling capture a greater share of the increased return to labour than the less-schooled, but the productivity of those with more schooling would not necessarily have increased either in absolute terms or relative to those with less schooling.

Finally, it is also possible that the principal function of schooling in economic growth lies in its legitimation of the existing, or some emerging, social order. The acceptance by the masses of a particular social structure could have a positive effect on economic output. However, if the accepted economic organization, acceptable in part because schools have helped legitimate that organization, is not maximizing total output but only the income of certain groups, schooling could have a negative effect on economic growth.

Schooling probably does all of these things, but the main discussion centres on which of these

functions best characterizes schooling's role (see Blaug 1972). The question is not so much whether schooling contributes to growth, but how much it contributes. It is clear that when dealing with measures (like rate of return) based on individual observations, we are picking up relations between individual characteristics and income that are rather independent of schooling (social class, ambition, culture) in the sense of preceding it, yet that may be correlated with schooling. In aggregate measures, as those made by Denison, the relation between schooling and growth, implicitly the relation of schooling and the productivity of labour, depends greatly on the interaction between human and physical capital. Although there is little doubt that productivity can increase with increases of physical capital per worker, holding human capital constant, does productivity of labour increase over time if human capital is increased but physical capital per worker is held constant?

An argument that could be made based on the legitimation hypothesis is that as human capital in the labour force is increased in a society that economically and politically favours those with higher incomes — no matter what happens to physical capital per person employed — more educated workers are able to keep their wages higher relative to their productivity than less-educated workers, because the higher educated are more like members of economically powerful groups than those with less education. The fact that as education expands secularly relative to physical capital growth, rates of return to education fall first for lower levels of schooling, then for progressively higher levels, lends support to this argument (Carnoy 1972; Carnoy and Marenbach 1975). Eventually, of course, even rates to university education fall if physical capital per employed person is expanding slowly relative to investment in education, but within university education, divisions appear that still ensure high returns to certain kinds of training and the groups that get it (Carnoy 1978; Psacharopoulos 1980b).

The problem is that declining social rates of return do not necessarily mean that productivity of labour as a whole is decreasing, nor that the productivity of investment in a particular level of education is declining relative to other levels. For example, rates uncorrected for social class background may be declining over time because an increased percentage of lower social class youth is graduating from a particular level, not because schooling itself is contributing less to productivity. Or, rates may stay high despite declining contributions of schooling to productivity simply because of declining opportunities for youth employment. One of the ironies of rates of return to schooling is that they generally rise in recessions, especially because a high fraction of higher-educated labour is employed in recession-proof government jobs.

We conclude that the contribution of educational investment to growth is smaller than the early human capital theorists and development economists thought. The correlation between earnings and schooling picks up many other influences on earnings that are also correlated with schooling but should not be attributed to it. There is also little evidence that earnings and productivity are isomorphic. Indeed, it is likely (on political grounds) that societies in which the higher educated are more powerful socially and politically reward those with higher education more relative to their productivity and those with less education less relative to their productivity even if, in neoclassical terms, this prevents an optimum allocation of resources. Some of the positive effects of schooling on productivity, like those that are passed through higher maternal education, are felt well into the future and, hence, have low present value. We think that there is some relation between schooling and productivity, but it is difficult to say whether the important contribution of formal education to increased material output takes place in the early years of schooling or at higher levels, where specialized techniques and perhaps more sophisticated organizational skills are learned. Certainly Psacharopoulos' "higher rates of return to primary schooling" cannot be used to prove or even suggest that investment in primary schooling contributes more to growth than investment in higher education. There are arguments that indicate relatively greater upward bias in the primary rates (declining social rates over time first at the primary level, for example) and others that indicate greater bias in the rate of return to higher education (social class correction; legitimation argument). It is evident that the actual size of the contribution of education to growth is probably not what we once thought it was. Also, it may very well be declining in those countries where educated labour is expanding relative to physical capital growth.

Education and Income Distribution

International agencies, economists, and educational planners have all become more concerned with income distribution in the last decade. A number of studies found, for example, that increased GNP per capita did not necessarily mean that all groups in the economy participated in that increase (for example, Barkin 1971; Fishlow 1973). This raised serious questions about the

meaning of a development process that was benefiting only part of the population, generally those with already higher incomes. Indeed, distribution of benefits was explicitly or implicitly understood as a proxy for the relative influence of lower and higher income groups over the development process. Where an inordinate amount of political/economic power is held by relatively few, the distribution of income is, not surprisingly, very unequal; where such power is relatively diffused, the distribution is much more equal. Although there seems to be some trade off between rates of economic growth and equality of income distribution (Chenery et al. 1974; Adelman and Robinson 1978), there is so much variation in growth rates among those countries with equal and unequal income distributions that generalizations are dangerous. Thus, other factors besides income equality or inequality are evidently important in understanding why economies grow. On the other hand, political instability seems greatly sharpened by wealth and income inequality (Dahl 1971), and political instability, should it occur and until it is resolved, has a negative effect on growth.

Education has long been viewed as a possible contributor to greater social and economic equality (see, for example, Smith 1937; Kuznets 1955). What function does schooling play in income distribution? Human capital theory argues that a more equal distribution of schooling in the labour force tends to equalize workers' earnings capability and, therefore, earnings distribution. Yet, the literature on screening and the queue theory (reviewed above) indicate that schooling designates who gets the high- and low-paying jobs in the economy, not the distribution of earnings associated with those jobs. The variation of earnings among jobs in those theories would not be affected by the distribution of schooling in a society; income distribution is a function of the jobs available and the incomes attached to those jobs. The legitimation/reproduction of class structure argument also implies a distribution role for schooling, primarily in maintaining groups of people in the same relative income position from generation to generation.

To sort out these relationships and what we know about them, the discussion should be divided into two issues; the effect of education on *inter*generational changes in relative income position (mobility) and its relation to *intra*generational changes in income distribution.

Intergenerational change has been the object of many studies, particularly by sociologists (Floud et al. 1957; Havighurst and Gouveia 1969; Jencks et al. 1972; Sewell and Hauser 1974; Fagerlind 1975; Jencks et al 1979). Sewell and Hauser (1974), for example, found that in the U.S. education and occupational status of parents are highly correlated with children's educational attainment, but that while the overall effect of parents' status/income is the single most important variable explaining a person's current income, educational attainment is almost as important. Furthermore, in the advanced industrial countries like the U.S. and Sweden, the overall portion of earnings variation explained by parents' socioeconomic status and by a person's IQ and educational attainment is very low (less than 10%). This was Jencks' original argument as well, but he changed his mind in more recent work (Jencks et al. 1972, 1979). Bowles and Gintis (1976) indicate a relatively large effect of socioeconomic status (through educational attainment) on economic success, with IQ playing a very li[illegible] role. In all studies, schooling appears to increase mobility even when parents' socioeconomic background is taken into account.

In developing countries, the effect of schooling on earnings appears to be greater than in the United States (see, for example, Carnoy 1967; Castro 1970; Psacharopoulos 1973; Carnoy et al. 1975; Liu 1975; Carnoy et al. 1976; Fry 1977; Carnoy et al. 1979; Heyneman 1979; Mazumdar 1981). Even though few of the developing-country studies carry out an analysis where the effect of the parents' social class background is related to both the child's school attainment and later adult income, where this is done (Mexico, Tunisia, Malaysia, Singapore, Thailand, and Uganda, for example), the results indicate that the effect of schooling on earnings (accounting for socioeconomic background) is much greater than in the United States. Schooling and social class variables together explain a higher fraction of income variance in the developing countries. In the studies where the parents' social class variable does not enter the estimate, schooling alone as an explanation of earnings is more important than in the U.S. estimates.

Therefore, much more than in high income countries, schooling and socioeconomic background variables in developing economies are together highly related to earnings and occupational position. Thus, there appears to be less of a chance factor in a person attaining his or her economic position in low-income societies. Although there is not very much information about whether parents' social class is important in explaining the amount of schooling taken by children, Belloni's and Vasquez de Miranda's (1975) research in Brazil indicates that parents' social class explains about 50% of the variance in individual educational attainment. Dhar

and his colleagues (Dhar et al. 1976) show that sons and daughters from higher social classes in India study in fields such as medicine and engineering that are higher paying and are characterized by very low unemployment rates, whereas lower social class youths tend to take arts degrees. Work in Kenya also shows a high correlation between father's income and the amount and kind of schooling taken (Mwaniki 1973). On the other hand, Heyneman makes the claim in his work on Uganda (Heyneman 1979) and Malawi (Heyneman 1980) that social class does not determine how much schooling children get.

Are these opposing views reconcilable? It is possible that schooling generally does confirm status and social access passed down through parents' social class and legitimizes the passing of social position from one generation to the next, but that this function is more pronounced in Latin America and Asia than in Africa, where multiple social structures still exist (tribal versus colonial/capitalist). Yet the generalization of this claim (prompted by Heyneman's results) is limited even in Africa. Although it is probably true that in the postindependence period, the departure of expatriates left a vacuum to be filled with the rapid expansion of schools (and the need for school teachers), and that both students and teachers filling this vacuum come from families of various "social classes," but once new social classes begin to crystallize, this situation apparently changes. Mwaniki's work indicates, for example, that new social structures based on European-type peasant/worker/urban bourgeoisie divisions are developing rapidly in some countries like Kenya. Samoff's (1979) research on Tanzania shows yet a different class division, that between state bureaucrats/urban technocrats and the mass of peasants. As far as intergenerational mobility is concerned, then, schooling undoubtedly contributes in developing economies to such mobility, but parents' social class is very influential in determining how much schooling a person gets.

The issue of schooling's role in intragenerational variation in income is much more complex. Here we are less interested in the effect of schooling on individual mobility within a certain income structure, and much more interested in the structure itself and how it changes. Both issues are important, of course; in theory, there could be great intergenerational mobility within a highly unequal income structure. This would imply the relative absence of persistent social classes. On the other hand, there could be relatively little mobility in a highly equal income structure. This would imply the relative presence of persistent social classes, but such classes would not have much importance in determining living standards and consumption patterns. The fact that there exist some examples of the latter case (for example, Sweden, Israel, Eastern Europe, and Cuba) and perhaps none of the former (although the U.S. has always claimed to fall into that category), indicates two things: first, mobility and income structure are correlated (even in Sweden, Israel, and European socialist countries mobility is as high as in the U.S., for example); and second, it is easier to influence the structure of income distribution than mobility in industrializing societies because the skills needed to change the class structure in such societies require time to acquire and are expensive to provide to the large masses of the population who do not have them. As the educational level rises, so does the kind of production and the organizational skills necessary to manage production. In general, those who come from families with highly educated parents are more likely to do very well in the educational system. It seems to be more difficult to change the pattern of skill acquisition in modern and modernizing societies than the reward structure itself.

As early as the mid-1950s, Simon Kuznets (1955) argued that the distribution of income becomes more equalized as an economy reaches higher levels of income per capita. One of the principal reasons for such equalization, in Kuznets' view, was the higher education of the labour force in higher-income economies and the increased political participation and power that increased education gives labour. Thus, Kuznets came, in part, to this conclusion because he reasoned that a more educated labour force is more likely to agitate politically for a more equal wage structure.

Yet there are also good economic reasons in neoclassical economic theory for predicting that higher average schooling will contribute to a lower variance in earnings; if there is a direct connection between education and productivity, and between productivity and earnings, raising the average level of schooling could eventually reduce the variance of year of schooling in the labour force. There is probably an upper limit on how much schooling people would be willing to take, because there are fewer and fewer years left in the life cycle in which to collect increased earnings from such additional schooling. Also, because governments seem increasingly committed to providing a minimum level of schooling to its young population, the minimum will rise as the average level of schooling in the labour force rises (we discuss this policy in detail below). These two effects reduce the variance of schooling in the labour force over time and should, if the connection between education,

productivity, and earnings holds, also reduce the variance in productivity, and, hence, earnings. The reduction in the variance of schooling in the labour force can be achieved directly by concentrating investment in lower levels of schooling (Fishlow 1973). In any case, varying the distribution of schooling in the labour force should have a direct effect on the distribution of earnings if the causal connection between these two variables really exists.

In his study of the significant increase in income inequality in Brazil between 1960 and 1970, Langoni (1973) explains the change in precisely that way: the distribution of income became more unequal in part because the distribution of schooling became more unequal. Brazilian university education expanded much more rapidly than primary school. Indeed, Langoni goes along with Kuznets on another implicit assumption (made explicit in Langoni's work) — not only is the change in schooling distribution partly responsible for the change in earnings distribution, but the pattern of education expansion is a "natural" phenomenon in the economic growth process. So, just as Kuznets uses "natural" forces in the economic growth process to predict an evolution to more equal income distribution, Langoni uses them to explain an increasingly unequal income distribution.

Langoni's analysis argues that much of the increase in income inequality observed between 1960 and 1970 occurred because of an increase in the variance of personal characteristics (particularly schooling) in the Brazilian labour force during the decade. Changes in the wage structure explain little of the change in income distribution. Langoni concludes, therefore, that increased investment in Brazilian university education will lead rapidly to a decrease in income inequality; as the supply of university graduates increases, the return to university education will fall and disparity in income between university, secondary, and primary graduates will decline. But Langoni gets these results by assuming that years of schooling are a good estimate for the amount of schooling in the labour force. He implicitly assumes that the cost structure of education remains the same over time, and, therefore, that the variance of years of schooling in the labour force approximates the variance of the "investment value" of education. But the cost ratio of university/primary education fell between 1960 and 1970. So, while the variance of years of schooling increased significantly in 1960–70, the Gini coefficient of schooling investment in individuals (including and not including income foregone) did not change. If Langoni had (correctly) used expenditures on schooling as his independent variable, he would have found a much larger contribution to more unequal income distribution from changes in the structure of income than from changes in the distribution of labour force characteristics. The correction would have necessarily forced Langoni to abandon at least part of the empirical rationale for the "inevitability" theory of more unequal income distribution.

Whether changes in the variance of personal characteristics (schooling, for example) or changes in the reward structure have the greatest influence on income distribution has a significant influence on policy conclusions vis-à-vis education and earning distribution. Changes in rates of return to education indicate how the reward structure itself is changing over time and give us clues as to how rewards versus variance in schooling are influencing income variance. Velloso (see Carnoy et al. 1979) shows that Langoni himself suggested elsewhere (Langoni 1970) that in the 1960s, despite rapid increases in university education spending and enrolment, rates of return to that level increased relative to the payoff to lower levels. Velloso's analysis indicates that the distribution of schooling in the labour force is not the only variable we must account for in assessing schooling's role in earnings distribution. Changes in the payoff to different levels of schooling also contribute to changes in earnings distribution. The factors affecting the rates of return to different levels of education, therefore, become quite crucial in analyzing the relationship between educational policy and income inequality. A neoclassical view of these factors focuses entirely on supply and demand for labour, as we discussed in the preceding section. Thus, Langoni might explain increasing rates of return to the university levels by the increasing demand (relative to supply) for labour with that higher level of schooling without discussing why the demand was increasing so rapidly. There are probably some logical reasons for this increase, such as the rapid introduction of advanced technology in some Brazilian industries in the 1960s, and the rapid expansion of the public sector, including the educational system itself. The latter is the largest single employer of university educated labour in the country (in fact, in most countries). Further, educated labour is much more "downward substitutable" than "upward substitutable"; i.e., employers can more easily substitute more- for less-schooled workers to do the same job than vice versa. Thus, there is little reason to argue that the rapid increase in demand for higher educated relative to lower educated labour will taper off in Brazil; rates of return to the higher

educated are likely to rise or at least not fall in an industrializing country even as the educational system expands, whereas the rate to lower levels will tend to fall. Indeed, we can almost make a "universal rule" that there will be a tendency for the rates of return to lower levels of schooling to fall relative to higher level rates as education expands and the economy modernizes, all other things equal (see Carnoy 1972).[4]

However, Velloso agrees with Langoni's conclusion that the distribution of schooling is positively related to distribution of earnings in Brazil, and that, therefore, an equalization of schooling distribution would tend to equalize earnings. This result is corroborated by two other studies that use Langoni's methodology, but, like our critique of Langoni's and Velloso's data, raise serious questions about the size of the education effect. Toledo's estimates for Peru compare income distribution in 1961 with 1972 (Carnoy et al. 1979) and show that changes in the composition of the labour force during the decade are much less important than changes in the structure of relative income per se in explaining changes in income distribution. The distribution of observed labour income became somewhat more unequal in Peru between 1961 and 1972, the level of education in the labour force increased somewhat, and changes in the distribution of personal characteristics contributed to an equalization of income distribution. But this equalizing effect was more than offset by a disequalizing effect coming from changes in the wage structure during the same period, changes that raised incomes of already well paid employees relative to lower paid workers and employees. Like Toledo's study, Lobo's work in Mexico (Carnoy et al. 1979) shows that changes in the distribution of the labour force's personal characteristics between 1960 and 1970 had a small effect on changes in earnings distribution, which became slightly more equal as measured by the Gini coefficient but more unequal as measured by variance of the log of income. The Mexican school system expanded rapidly in the decade, but schooling apparently had a negligible (even though slightly positive) effect on earnings distribution. The greatest contribution to the change in earnings distribution came from the increased disparity in regional earnings and in the earnings in different economic sectors.

The relatively small but positive influence of changes in the distribution of personal characteristics, including education, in the labour force on the change in the distribution of earnings, and the larger effect of wage structure changes, not only is in direct contrast to Langoni's results for Brazil, but suggests that the human capital model has problems in predicting changes in earnings distribution over time. The results also lend some support to the Thurow–Lucas concept that productivity is a function of jobs, not characteristics of workers. If the queue theory is a better explainer of wage distribution than human capital, the effect on income distribution of changing the distribution of schooling in the labour force should be small, even if positive. It would be the job or income structure itself that would have to be changed to influence income distribution. Education would serve to allocate people to jobs with various earnings attached to them. In an economy where their distribution were highly unequal, the value of additional schooling would be high, and in the case where their distribution were more equal, the value of additional schooling would be correspondingly lower. Again, in Brazil, Malan and Wells (1973) present evidence that the increased inequality of Brazilian incomes did not occur during the rapid growth period of the late 1960s, but rather in a 2-year period, 1965–66, when the Brazilian government intervened directly in the wage structure by holding wages fixed during an inflationary period and allowing salaries to rise more rapidly than prices. Although no other country has had an empirical debate of this sort, data for Chile (see Johnston 1973; Uthoff 1981) also indicate that changes in the distribution of schooling had a negligible effect on income distribution, whereas direct government wage policy during three successive regimes (1964–79) significantly increased inequality (1966–70), reduced inequality (1970–73), and increased inequality (1973–79).

United States data, furthermore, point to unemployment as a key factor in income distribution, apparently more important than either the level of education or its distribution (Chiswick and Mincer 1972). The fact that unemployment (number of days worked annually in this case) is a function of policies that have little to do with schooling (business cycles, the direct intervention of the state in monetary and fiscal policy, or even direct controls over investment and employment) again suggests that the distribution of income, while possibly related to the distribution of education in the labour force, is more closely related to government macroeconomic strategy directly related to incomes policies; if a government is dedicated to ensuring full employment and reducing the variance of earnings in the labour force as part of its development policy (Israel and Sweden, for example), the income distribution will

[4]Modernization does not necessarily mean industrialization. It can also include bureaucratization, urbanization of services, and commercialization of agriculture.

be more equal than in economies where the government is primarily concerned with shifting income to professionals and administrators (Mexico and Brazil, for example). It is likely that, in both cases, educational investment will be oriented to be consistent with an overall incomes policy (although in Chile between 1964 and 1973 it was not), so it may be a moot point to separate the effect of education from the direct intervention of the state. Nevertheless, in the studies we have cited, education seems to play a rather limited role in affecting the distribution of labour income, at least during the periods covered by the studies.

It is important to note that in most of the literature on both intergenerational and intragenerational education/earnings relations, the dependent variable being discussed is wages and salaries (earnings, or labour income). But wages and salaries plus government benefits going to labour represent only a fraction of the economy's total product — about 65−75% in the United States (Bowles and Gintis 1982), 70−75% in Western Europe (Denison and Poullier 1967), and perhaps as low as 50−55% in Latin America. Even if changing the distribution of wages and salaries through an educational policy could work, it would, therefore, affect directly less than three-fifths of the total income distribution in developing countries unless other measures were taken to equalize wealth. So making the access to wages and salaries less dependent on the father's education and earnings (through making access to education more equal for various income groups, for example) might have some effect on the access to nonwage income derived from capital wealth (including land and physical capital), but this effect would be indirect, depending on the ability of higher educated, nonwealth-holding individuals to accumulate capital through higher income and higher status occupation. In general, while there are large variations in wage/salary income in all capitalist countries, these variations are considerably smaller than the distribution of all income, which includes income from physical wealth.

The large number of studies already done on intergenerational mobility indicate that schooling is a significant explainer of who gets what job and salary in almost every society and that schooling is much more important in developing countries than in highly industrialized ones (particularly the U.S.) as an earnings predictor. Although the data are much more limited on the relationship between schooling and social class background (who gets what schooling), it also appears that the social class/schooling relation is stronger in, for example, Latin America than in the U.S. and Sweden. This indicates that where societies are more class stratified, schooling and class will be more significantly related, and schooling, in turn, is a better earnings predictor. The two effects together indicate that schooling is an important reproducer of social class background in class-stratified, modernizing countries. Even so, we have noted that it is in precisely such countries that the return to physical capital accounts for a much larger share of GNP than in the U.S. or Western Europe. So while schooling may be a much more important earnings predictor in newly industrializing societies, earnings are a much smaller percentage of national income there.

The studies on income (earnings) distribution in the U.S. and Latin American countries that we have reviewed suggest that the relation between the distribution of education and the distribution of income is positive, but the size of the education effect seems to be small compared to other, more direct influences on earnings, such as changes in wage structure, regional disparities, and the rate of unemployment. The rate of return to education reflects some of these changes. For example, if the rate to higher education falls relative to the rate to investment in primary schooling, we can assume that the earnings distribution is tending to greater equality. However, if the opposite occurs, like in Brazil, the increasing relative rate of return to higher education reflects a trend toward greater inequality.

We have suggested that, in the countries we have observed, there has been this trend toward rising relative social rates of return to investment in higher education. This does not mean that rates of return to higher education are rising in absolute terms. But the payoff to private plus public investment in higher levels of schooling seems to stay constant or rise over time, whereas the rates to lower levels of schooling fall or rise more slowly. These statements are based on very few observations, because there are only a few case studies in which rates have been observed over time. Yet, there is a certain logic to them, given the general type of development pattern taking place in most economies: there is a "premium" put on higher education by the three most rapidly expanding sectors — manufacturing, high-level private services, and government services. Indeed, the rapid expansion of public education itself almost guarantees a rapidly expanding demand for university graduates. Even an "overexpansion" of the university level and a general tendency toward "overeducation" does not necessarily imply falling relative rates of return to the highly schooled, because they may be substituted for the less

educated, driving down rates to secondary and primary education relative to higher.

The effect of expanding education on income distribution is, therefore, quite complex. First, such an expansion increases the demand for the higher educated for teaching. The greater the expansion of secondary and higher schooling relative to primary, the more upward pressure on university graduate wages; hence, a tendency to greater earnings inequality.

Second, the expansion of higher education relative to primary at this point in history increases the variance of education in the labour force, because most people in developing countries are presently not receiving schooling beyond the primary level. Furthermore, most primary education in developing societies is low cost and low quality, which is reflected in the much higher university to primary cost ratios in developing countries (compared to the highly industrialized countries). Therefore, an educational investment pattern that places great relative emphasis on higher education in a society where most children receive only primary schooling will apparently contribute to greater earnings inequality when those children enter the labour force (Fishlow 1973). As we have noted in the Brazilian case, some of this effect can be offset by reducing the expenditures per student in university relative to secondary and primary schooling.

Third, political pressure for expanded university relative to lower schooling levels may reflect the more generalized political power of middle-class professional and white-collar constituencies relative to urban industrial workers, marginal populations, and peasants. It may also reflect pressure by multinational corporations, the government bureaucracy, and national heavy industries — all relatively advanced technology production sectors — for higher educated labour and the greater premium those sectors place on higher education, a premium that would be expressed in relatively high wages paid in jobs "requiring" university graduates.

All in all, the distribution of spending on education, while seemingly a minor contributor to earnings distribution, may reflect a general trend in a society that weights higher education — on both the spending and returns side — more heavily than lower levels. When all the parts to this trend are added together, the total may have a very significant effect on earnings distribution. One of the paradoxes of our hypothesis is that rates of return to higher education increase despite rapid increases in spending on and enrolment in that level. The neoclassical model (see Langoni 1973 or Freeman 1976, for example) predicts that the rate of return to higher education would tend to fall as a result of a major university expansion. But it appears that even with such expansions, the university rate rises in relative terms; i.e., either the payoff to secondary school falls faster than that to university (the U.S. case) or the payoff rises faster than either the return to secondary or primary school (the Brazilian case). Thus, the distribution of earnings continues to become more unequal even as rapid increases occur in university enrolment and graduation. Velloso (in Carnoy et al. 1979) shows that an assumption of continued increases in the relative rates to university and collegial levels in Brazil — given his estimated relationship between education and earnings distributions — results in greater earnings inequality projections by 1980 (the new Brazilian census should soon reveal whether Velloso or Langoni's reasoning was correct).

The relationship among the distribution of expenditures on education, earnings distribution, and the rates of return to schooling has important implications for educational investment policies in developing countries. Yet even more, it is important for evaluating present investment policies and alternatives to them. We argue that educational policy is generally part of an overall trend in public policy, which in turn is related to political/economic power relations in a particular society. Educational investment patterns are not totally autonomous from these other relations, even though they may have some independent dynamic, especially in terms of pressures for expanded educational spending from the educational bureaucracy itself.

In summary, the justification for educational investment as a contribution to economic growth exists, although it is probably not as obvious as early work in the economics of education indicated. Productivity differences between those with different levels of schooling would seem to be less than the measured earnings differences associated with increased education. Most difficult is the assessment of how much each level of schooling contributes to growth, for this requires knowing the earnings biases in productivity measures for labour doing different kinds of jobs. Eckhaus (1973) has shown how only correcting earnings of those with different levels of schooling for hours worked per year has significant effects on rates of return. Furthermore, rates of return change over time, and, we suggest, that the principal reasons for such change are not from the relative growth of enrolment in different educational levels. In many countries where the spending on the university level has been increasing most rapidly, the payoff to that

level has also been increasing relative to other levels. Perhaps, then, additional investment in the university is justified because the rate is rising. But what if the rate to primary education, despite this rise, is still higher than to university, and what if the university rate is affected by the expansion of university itself, as more people are needed to teach at that level?

Our dilemma is compounded by equity considerations. We have shown that reducing the variance of educational investment in the population is positively related to reducing inequality in earnings distribution. But changes in the reward structure have a much greater effect on earnings distribution than changes in the variance of educational spending. If educational policy is to have some effect on income inequalities, it must also influence the salaries associated with different amounts of schooling. There is one great advantage in looking at the school/earnings relation in that we do not have the measurement problem of assessing the economic (productivity) contribution of schooling. Earnings measure earnings. Yet we do have the continuing problem of measuring schooling itself and the relationship between schooling and earnings, for it is that relationship that estimates the relative effect of changes in human characteristics versus reward structure on the earnings distribution.

Educational Expansion and Political Legitimacy

Although we are fairly certain that increasing schooling in the labour force contributes to productivity and that reducing the variance of school investment in the labour force reduces income inequality, both of these important economic/social considerations may be rather irrelevant to actual educational spending decisions in a given society. We have already suggested that education is part of the public sector — the state — and reflects state policies. These policies, in turn, are influenced by political/social power conflicts. Education as such has become important as a symbol of progress and of individual success. It is prestigious to be more schooled, as well as materially rewarding. If there is enough widely observable evidence in a society that those who are more schooled and have attended more prestigious educational institutions are more materially and socially successful, the value of schooling as such increases at all levels. To reach higher levels of schooling requires attending lower levels first, and so even these lower levels acquire high value, more in terms of what they (possibly) lead to than their intrinsic worth.

We have reviewed literature on the economic payoff to schooling (rates of return) and intergenerational mobility. Both point to the fact that even primary schooling is a profitable investment (on average) for those who take it. This varies from society to society. Yet in those societies where the return to primary schooling is low, the first 6 or 9 years of education are still a prerequisite for higher levels, where the return might be high. Kenya is a good example of a society in which the population is so sold on education that communities build their own secondary schools (Harambee schools) and hire their own teachers when government schooling is not available. Thus, the educational expansion of the 1960s and 1970s has been translated into a symbol of material gain and mobility for many, if not most of the world's population. Education, no matter what the return to a particular level, obviously yields a higher level of consumption for those who finish its higher levels. As Michaelson (1972) pointed out, human capital investors may not be looking at rates of return when choosing to spend on education, but rather at the absolute consumption levels asssociated with having different amounts of schooling or the probability of making it. No matter how low the rate of return to taking 12 or 16 years of schooling, it is necessary to take that schooling to get certain jobs and access to certain levels of income. Because education is subsidized by the state, this is equivalent to getting a partial, interest-free loan from the government to invest in oneself if academic qualifications are met. But even without government subsidies, spending on education may be relatively less risky than other forms of investment, and, therefore, once schooling becomes an allocator of jobs and income in a society, the pressure for educational expansion is sustained even when rates of return to educational investment are low compared to other rates.

The unceasing and probably increasing demand for education in developing countries is a fact of political life in such societies. Education has become a form of social "right" for populations whose material standard of living increased slowly in the 1970s. As open unemployment has risen in the 1970s, the demand for education has increased, because unemployment is generally higher for those with less than with more schooling, particularly in urban areas (see Colclough 1980, table 4). Thus, more than the rate of return or equity arguments put forth as educational spending rationales by international agencies (or by us, above), political reality dictates educational expansion in response to education as a public "right."

As Alan Wolfe (1977) suggests, such public spending is necessary for a government to maintain "political legitimacy."

The issue of why public education expansion as such has become so central to the legitimacy issue in most societies is complex. Western education has been associated with progress and "civilization" for at least two centuries, but the incorporation of mass education into this concept in the developing countries is generally a post-World War II phenomenon, with some notable exceptions, such as Argentina, India, and the Philippines (see Carnoy 1974). Governments in developing countries focused on educational spending as a means to "develop" their societies, and their commitment to education was spurred by the industrial economies' assistance agencies in the 1960s. In addition, the fundamental role of planned educational expansion in the Soviet development process had an important influence on lower-income countries trying to gear up for growth.

But no matter how it began, once the process of featuring education as the means to individual and national success was under way, expanding the educational system and making schooling more accessible to the population became a crucial element of political legitimacy for any government. To a very large extent, education as a symbol of development has been incorporated into the view that society has of itself and its "mission": the future of developing societies is inextricably tied to their plans for the expansion and improvement of schooling. At the very least, all of these countries have an objective of economic growth that will keep pace and hopefully outrun the growth in population to provide a rising standard of living. That objective, in turn, is associated with educated labour being available in appropriate quantities to attract the necessary investment for growth. Education is also associated with increasing the potential productivity of workers so they can move from traditional to modern occupations. Moreover, the mediation of substantial inequalities both among regions and among families is also associated with educational intervention as a way of more nearly equalizing investments in skills and human capital. So most developing societies, as societies, view education as an important instrument for economic growth and democratization of opportunities. Finally, as we have stressed in this section, education is viewed by the state as having substantial political value in itself for meeting aspirations of populations for literacy, skills, credentials, and status. As a public service education may be a cheap way to secure such political value or legitimacy, compared to making structural changes in the economy that would redistribute income and wealth. Spending on education is, on the one hand, a way to provide a consumption good (children's education) to low-income populations, and, on the other, places responsibility for material gains resulting from such educational opportunities squarely on the shoulders of parents and children themselves. Such spending also probably makes labour more "trainable" and, hence, subsidizes investment in physical capital, even if the social return to educational investment is relatively low.

The results of these pressures to use education as a strategy for addressing economic growth, democratizing opportunities, and meeting aspirations for mobility and status is that most developing countries have established ambitious plans for expanding education in both qualitative and quantitative terms. In general, these plans can be summarized by four objectives:

- Meeting present constitutional obligations for compulsory schooling;
- Increasing the quality of schooling, especially in rural areas;
- Expanding secondary education to provide more persons with technical skills; and
- Satisfying the social demands for educational expansion at secondary and tertiary levels that are generated by meeting the first three objectives.

Present Constitutional Obligations

Virtually all developing countries have some constitutional provision with respect to compulsory and free education. Most typically, the young are required to attend school between the ages of 6 or 7 and 12 or 14. In some cases they are required to complete a basic cycle of education — typically through the eighth or ninth grade. But an inability to provide adequate schools in rural areas because of inaccessibility, high costs, shortages of teachers willing to teach in those places, and very rapid birth rates has created difficulties for many countries in meeting constitutional obligations. For example, a study in Brazil (Costa 1982) found that for each 1000 students who entered the first grade in 1968, only 172 were attending the eighth grade in 1975 (the grade they should have reached with normal progress). This phenomenon is caused by the very high wastage (dropout rates) and repetition so familiar in these situations, and even these two phenomena are closely related as forced repetition contributes to wastage.

Thus, a major challenge for many developing countries is to meet constitutional obligations by providing free schools for all students in the age

groups where schooling is compulsory and obligatory. This means that schooling expansion must surmount present deficiencies in overcoming this gap while keeping up with high growth rates in primary school-age population. Even maintaining the existing level of school quality for a larger enrolment base may require a substantial increase in a country's public spending.

Increasing Quality

Most developing countries face quality problems in their public schools. Often the children of the wealthy and upper-middle class attend private schools, although in some countries even these schools receive public subsidies. Thus, the public schools are considered to be schools for children of families who cannot afford high-quality education, and such schools are considered to be mediocre, even by the state that funds them. Salaries of teachers are low relative to those of other professionals with similar education, textbooks and supplies are inadequate, and libraries, laboratories, and other educational facilities are almost nonexistent. If these are serious problems in urban areas, they are overwhelming in rural ones. Even given the low quality of teacher preparation in urban areas, it is often impossible to obtain trained teachers for isolated rural schools. In those schools, the facilities and textbook availability are considerably worse.

The low quality of whatever schooling is provided leads to high levels of wastage and repetition. Students do poorly, in part, because they do not have good teaching or textbooks. This leads to repetition and frustration and eventual dropping out. Even many of those students who do reach secondary levels find that they are not equipped to respond to the heavier demands at those levels. Thus, the qualitative dilemma at lower levels is visited on higher ones in the form of inadequately prepared students.

From the planning perspective, the qualitative dilemma translates into the need to raise teacher training requirements, to expand textbook provision, and to upgrade existing educational facilities. From a financial perspective, there are costs attached (a) to the improvement of teacher training and to the salaries required to attract and retain good teachers; (b) to the increases in budgets for the production, acquisition, and distribution of texts and other instructional materials; and (c) to the improvement of education facilities. Qualitative improvement is likely to require a substantial budgetary commitment.

Expanding Secondary Education

The expansion of secondary education (and postcompulsory education generally) and equalizing its availability among regions is a third priority. Developing societies typically face surpluses of primary, secondary, and, more recently, university graduates, and a shortage of persons with specific technical skills. Many of these specific technical skills are associated with secondary education, and so production bottlenecks may occur even with expanded primary schooling. Moreover, with the universalization of urban primary education in many countries, the equity/distribution problem shifts to the availability of secondary schooling, not only in urban but especially rural areas, where secondary education is sparse.

The expansion of secondary schools has important financial implications. Secondary schooling is much more costly than primary. Although the differentials vary from country to country, per student public spending, which does not include the higher direct costs and income foregone borne by secondary students and their families, runs two to five times as high as primary (see Table 1). The differences are largely due to smaller class sizes and higher teacher salaries for better prepared secondary teachers. The result of the higher secondary school costs is that even modest expansion and improvement may have profound cost consequences.

Consequences of Educational Expansion on Social Demand

We have argued that educational expansion occurs, in part, because of the symbolism (partially reflected in reality) of education as a means to higher status and income and to social progress in general. But once expansion occurs, it fuels demands for even more (and more expensive) education. A significant proportion of students who complete the compulsory segment successfully will wish to continue into secondary education, and the increasing number of those who complete the secondary level will press for university admission. In part, this increased demand is generated by rising educational standards in labour markets, which in turn means that social mobility requires ever increasing levels of educational attainments. In part, it is generated by expectations of graduates at each level that they should have options to continue.

Strong, successful public policy action to implement the three policy goals of meeting

Table 1. Actual and projected public spending on primary and secondary education in selected countries, 1978 and 1988 (millions of local currency in constant 1978 prices). (The values within parentheses are percentages of GDP.)

Country	(1) Actual (1978)	(2) Estimated[a] (1978)	(3) Legitimacy gap (1978)	(4) Projected (1988)	(5) Estimated (1988)	(6) Legitimacy gap (1988)
Primary[b]						
Brazil	33300	44000	11000	103000	58000	−45000
	(0.98)		(0.33)	(0.98)		(−0.43)
Egypt	74.2	131.9	57.7	120.3	162.8	42.5
	(0.90)		(0.60)	(0.90)		(0.28)
India	4450	7700	3250	6500	9500	3000
	(0.46)		(0.34)	(0.46)		(0.21)
Kenya	1150	1300	150	2800	1850	−950
	(2.70)		(0.35)	(2.70)		(−0.93)
Mexico	25600	25900	300	46500	36500	−10000
	(1.22)			(1.22)		(−0.26)
Thailand	6600	13300	6700	13700	17500	3800
	(1.48)		(1.50)	(1.48)		(0.41)
Secondary[c]						
Brazil	12400	47900	35500	37800	63200	25400
	(0.36)	(1.40)	(1.04)	(0.36)	(0.60)	(0.24)
Egypt	175	216	41	280	270	−10
	(2.11)	(2.61)	(0.50)	(2.11)	(2.01)	(0.10)
India	10600	23000	12400	15500	28300	12800
	(1.10)	(2.39)	(1.29)	(1.10)	(2.00)	(0.90)
Kenya	315	1180	865	770	1680	910
	(0.75)	(2.75)	(2.00)	(0.75)	(1.65)	(0.90)
Mexico	16000	22000	6000	28900	31300	2400
	(0.76)	(1.05)	(0.29)	(0.76)	(0.82)	(0.06)
Thailand	2300	6500	4200	4700	8600	3900
	(0.51)	(1.46)	(0.95)	(0.51)	(0.93)	(0.42)

[a]Estimated spending for primary and secondary education for 1978 and 1988 if all age groups are in school.

[b]Column (1) figures are taken from the UNESCO Statistical Yearbook for the latest year available and are projected using wholesale price index between that year and 1978, if necessary. Figures within parentheses equal the ratio of the absolute spending figure shown as a percentage of GDP in 1978. Column (2) = per pupil primary school spending in 1978 times the relevant age group for the total number of years of primary schooling (see text); column (3) = column (2) minus (1); column (4) = projected GDP based on real growth rates, 1970–78, times percentage of GDP from column (1); column (5) = per pupil spending in 1978 times projected relevant primary school-age population in 1988; column (6) = column (5) minus column (4).

[c]Column (2) = three-fourths of the 15–19 year olds in each country in 1978 multiplied by the average 1978 public spending per secondary student; column (3) = column (2) minus column (1); column (5) = three-fourths of the projected 15–19 year-olds in 1988 multiplied by the average 1978 public spending per secondary student; and column (6) = column (5) minus column (4).

Source: Columns (1) and (4) under secondary education are from the UNESCO Statistical Yearbook, 1981; the United Nations Demographic Yearbook, 1980; and the United Nations Yearbook of National Income Accounts, 1977, Vols. 1 and 2.

constitutional obligations, improving quality, and expanding secondary education, will, therefore, generate increased social and political pressures to provide more opportunities at the secondary and postsecondary levels. That is, successful attainment of these goals will create demands for expanding secondary and tertiary schooling that may go far beyond the purposive planning implied by the first three objectives. Given that public university education expenditures per student are usually 10–20 times that of public spending on primary (again, this does not include direct and indirect costs borne by students and their families), and even higher in countries with relatively small university populations (see Table 1), the cost consequences of such expansion can be significant.

Is it reasonable to believe that developing societies will be able to meet these goals and the additional pressures for educational expansion with existing resources? Given growth rates in the last decade projected into the future, will developing economies expand rapidly enough to achieve educational expansion and quality improvement in the next 10 years? Although the industrialized societies can allocate from 5–8% of their GDP to education, it is apparently much more difficult for

developing countries to use such a high proportion of GDP for educational spending, although Cuba has been allocating 10–12% of GDP for schooling. Most governments are, therefore, increasingly constrained in meeting the demand for more education. Attempting to appear committed to massive spending on schooling (an attempt to increase legitimacy), they pass legislation for compulsory basic education when it is fiscally impossible to provide that education. Furthermore, they are pressured by middle-class constituencies to expand university education rapidly when many children are not finishing primary school. A real crisis for these governments, then, may take place over the rift between educational symbolism and reality. This "legitimacy" gap refers to the difference between resources implicitly promised by the state for education in a given year and what it can deliver. The gap is, therefore, measured as the annual percentage of GDP that the state would have to add to present (or future) educational expenditures to provide promised education to its various constituencies. We will discuss four aspects of the gap: first, what has the state promised constitutionally in terms of basic education and what can it hope to provide within those constitutional guidelines, second, how much might it cost to improve the quality of primary schooling up to standards that make such education reasonably effective, third, what are the implications of such promises for spending on secondary education, and fourth, what are the implications of educational expansion for the expansion of higher education?

Constitutional Guarantees and Fiscal Reality

The paucity of accurate data and the modest resources for this project have precluded elaborate simulations of the different policies for different countries to ascertain their cost implications and estimated burdens on GDP. Nevertheless, we have taken available data for a number of countries and simulated the impact on cost burdens of the various components of educational expansion.

As examples of the first aspect of the legitimacy gap, we estimate for six countries (Brazil, Egypt, India, Kenya, Mexico, and Thailand) (a) what it would cost in 1978 and 1988 to provide education as stipulated by the most recent basic education laws (compulsory schooling), (b) how much was actually being spent in 1978 on this "compulsory" education, and (c) given actual percentages of GDP spent on compulsory education, how much will be spent on compulsory education if current spending trends continue. The difference in 1978 between actual and legally stipulated spending is the current legitimacy gap. The difference between projected spending in 1988 and the legally stipulated spending in that year is the projected legitimacy gap. Can stipulated educational access be achieved by developing countries? Meeting such goals depends heavily on the rate of GNP growth, the growth of state expenditure on education, and the pattern of allocation of expenditures within education. Our estimates should give us some clues as to how close or far away stipulated goals (education as symbol) are from fiscal reality.

The derivation of these estimates is plagued by a general lack of reliable data, and data existing in a form that does not lend itself to precise estimates. Hence, our figures should be viewed as approximations — as broad indicators — and should be interpreted with care.

Table 1, for example, summarizes the estimates for our six case studies. All the countries chosen have some provision either in their constitution or educational plan for compulsory primary education. In other words, they expect to provide primary schooling for all young people in the country. Primary school varies in length from country to country, however. In Brazil, it is now 8 years; in Egypt, 6; in India, 5; in Kenya, 7; in Mexico, 6; and in Thailand, 7. In addition, given the repetition of grades, it would generally take up to 2 additional years and even longer for an average pupil to finish primary school. The percentage of pupils in any given academic year who are repeaters varies from a low of 6% in Kenya to 18–21% in Brazil and India. Except for Kenya, we assume that the average length of time necessary to complete primary schooling is 2 more years than the official number.

But even this does not capture the true situation in developing-country primary schools. For example, if we assume that it takes 8 years to finish primary school in Mexico, everyone from about age 7 through age 14 would be in school. There would be usually 7–9 year-olds in first grade, 8–10 year-olds in second grade, and so forth, all on the assumption that children are repeating grades at the same time that most children are in the grade for the first time. In 1978, there were 13.8 million young people 7–14 years old, and the Mexican statistics showed 13.1 million young people in primary school. Yet, dropouts are still high enough in Mexican primary schools that 26% of all primary pupils are in first grade and only 11% in sixth (a distribution far more disproportionate than that explained by high birthrates). Unless pupils repeat three or four times and do not graduate, it is difficult to imagine how such a high percentage of

7–14 year-olds is actually in school. Nevertheless, these are the figures used in our estimates because they are the only ones we have.

The cost of compulsory schooling in 1978 is estimated by multiplying the number of young people who are eligible for schooling in 1978 by the actual cost per pupil in that year. Annual cost per primary school pupil varies widely among the six cases: about U.S.$15 in India, U.S.$35 in Thailand, U.S.$40 in Egypt and Kenya, U.S.$85 in Mexico, and U.S.$110 in Brazil. These costs represent only the public spending by the Ministry of Education, and generally do not include spending by municipalities, state governments, or private individuals and their families. Finally, we projected compulsory schooling-age populations to 1988, as well as GDP. We estimated what primary school spending would be if the same percentage of GDP were spent in 1988 as in 1978 and compared this figure for each country with the eligible compulsory school-age population in 1988 times the 1978 cost per pupil.

The difference between the 1978 actual spending on primary schooling and the spending necessary in 1978 to get everyone through compulsory schooling is the 1978 legitimacy gap associated with primary school expansion. Similarly, we have estimated the gap in 1988. On the basis of this gap, we can divide the countries into three groups: Mexico and Kenya comprise the first group — they were apparently spending enough on public primary education in 1978 to ensure that all young people of compulsory school age would finish primary, even if it took 8 years to finish the 6 years of schooling in Mexico and 7 years in Kenya. Although we have doubts that there are really as many pupils attending primary schooling in the two countries as they report, the legitimacy gap there is not very significant. With past patterns of economic growth (5.6% real per-capita annual growth between 1970 and 1978 in Kenya and 2.6% in Mexico), almost all pupils should be finishing primary school by the mid-1980s.

Brazil falls into the next category. While the gap in 1978 between promises and delivery in 1978 was still large (the Federal gap alone was 0.33% of GDP, about one-third of what was actually being spent on primary education), the historical GDP growth rate in Brazil in the 1970s was so high that if it continues, there should be no gap by the mid-1980s. But the elimination of the gap does depend very much on a high rate of economic growth.

Three countries, Egypt, India, and Thailand, show sizable gaps in 1978 and will continue to have a large deficit in 1988. Egypt's spending gap will represent about 0.3% of GDP in 1986; India's should be about 0.2% of GDP, and Thailand's, about 0.4%. These percentages are lower than in 1978, but still imply serious differences between the fiscal requirement of a complete primary education for all three countries' youth and what will be spent.

Of course, all this assumes constant real public spending per pupil in the 10 years from 1978 to 1988. What if we change this assumption to double primary school spending per pupil? This means a considerable increase in the quality of primary school education, because, if nothing else, it will halve class size.[5] Table 2 shows that the legitimacy gap increases substantially if we include an implicit promise of better primary schooling, which, for the most part, implies equalizing primary education for rural and urban children and marginal urban with middle-class children.

Our results show that the legitimacy gap increases in Egypt, India, and Thailand to almost twice the spending projected by holding spending at the same percentage of GDP as in 1978. The three countries that showed no gap in 1988 if quality is held constant, now show a substantial deficit when the spending per pupil is doubled, and it is assumed

Table 2. Projected spending on primary education assuming 1978 per pupil public spending doubled by 1988 (millions of local currency in constant 1978 prices). (The values within parentheses are percentages of GDP.)[a]

Country	(1) Projected (1988)	(2) Estimates[b] (1988)	(3) Legitimacy gap (1988)
Brazil	102900	116200	13000 (0.12)
Egypt	120	340	220 (1.64)
India	6500	19000	12500 (0.88)
Kenya	2800	3700	900 (0.88)
Mexico	46400	73000	26600 (0.70)
Thailand	13700	35000	21300 (2.30)

[a]Column (1) = Table 1, column (4) under primary education; column (2) = Table 1, column (5) times 2 under primary education; and column (3) = column (2) minus column (1).

[b]Estimated spending for primary education for 1988 if all age groups are in school, cost/pupil doubled.

[5]Recent studies have shown that, contrary to earlier evidence, if there are substantial decreases in the pupil–teacher ratio, pupil achievement is likely to rise (see Glass and Smith 1979).

that all primary school-age youth stay in school the required years.

Secondary Schooling and Fiscal Reality

Now let us assume that youth approximately 15–19 years old finish primary school and stay in secondary school for 3 years (not necessarily completing 3 years, because one or more can be repetitions). Our projected 1973 secondary school-age population is three-fourths of the 15–19 year-olds in each country in 1978. Multiplying this population times the per student secondary school public spending in 1978, we get the estimated spending if all secondary school-age youth would be attending that level of schooling in 1978. For the "all age group" 1988 figure, we project three-fourths of the 15–19 year olds in each country to 1988, using overall 1970s population growth figures, and multiply by the actual 1978 cost per secondary school pupil.

In all our case studies, the legitimacy gap declines between 1978 and 1988, because GDP growth rates are more rapid than population growth. In fact, our estimates of secondary school demand are rather low because the potential age group for 5 or 6 years of secondary school is much larger than 3 years of the 15–19 year-old age cohort. Even so, except for Egypt and Mexico, the deficit represents a substantial fraction of 1988 GDP, almost 1% in India and Kenya. Egypt is apparently in a much better position to meet secondary school demand than primary, because it already spends a much higher fraction of GDP on secondary schooling.

Higher Education Expansion and Fiscal Reality

Higher, or third level, education has expanded most rapidly everywhere in the developing world. According to UNESCO data, enrolment in third level education in 1965–75 grew more much more rapidly than other levels (see Table 3). Only in Asia did higher education enrolment growth decrease (11.5%/year to 6.4%/year) from 1960–65 to 1965–75, while growth of total enrolment fell everywhere. How did governments handle this rapid increase in the most costly of education levels? For the most part, they reduced the relative cost of providing higher level schooling. Table 4 shows that the drop in relative expenditures per university student has been large and almost universal across countries (again, there are notable exceptions, such as Ivory Coast and Mexico in recent years). This fall in relative spending per student (where it occurs), is due, according to Psacharopoulos (1980b), to economies of scale; yet whatever the reason, and Psacharopoulos' argument represents only one reason, the lower spending per student has enabled developing countries to expand university education rapidly without increasing third level spending drastically. Nevertheless, such spending has risen as a percentage of total spending on education in a number of countries (see Table 5).

When we consider the situation posed by the legitimacy gap shown in Tables 1 and 2, we can see that the three countries in most serious trouble vis-à-vis their primary education (Egypt, India, or Thailand) seem to have taken steps to reduce per student university spending relative to primary even though the percentage of the education budget (at least that reported to UNESCO) going to university education has not been reduced significantly in any one of the three. It is doubtful that in these countries, given the size of the university system in 1965, economies of scale have played an important role in reducing per student relative spending. If anything, the quality of university training is probably being reduced as student numbers

Table 3. Annual average increase (%) in enrolment in the developing world, 1960–75.

Region	Years	Total enrolment[a]	First level	Second level	Third level
Africa	1960–65	6.9	6.4	12.0	11.2
	1965–75	6.0	5.3	10.6	11.2
Asia[b]	1960–65	6.2	5.4	8.3	11.5
	1965–75	3.7	3.2	4.6	6.4
Latin America[c]	1960–65	6.1	5.3	10.8	9.8
	1965–75	5.6	5.2	6.1	14.6

[a]Does not include preprimary, special, and adult education.
[b]Not including People's Republic of China and Democratic People's Republic of Korea.
[c]Beginning in 1973, the duration of primary schooling in Brazil was increased from 4 to 7 years and that of general education at the second level, reduced from 7 to 4 years.
Source: Colclough (1980, table 2).

increase. In Brazil, which has problems with primary education today but may have everyone completing school in the next decade, relative university per student costs have also dropped since the 1960s. In Kenya, the same is true (in that case, economies of scale are probably most significant). But in Mexico, after a decade of declining relative per pupil spending on universities, the figure rose drastically in the late 70s, with absolute per pupil spending on primary declining for the first time.

What will these six countries be spending in 1988 if enrolment growth in universities continues as rapidly as it did in the 1970s? Table 6 indicates that the projected spending in 1988 will be considerably higher with such growth than if the same percentage of GDP were spent on higher education as in 1978 in all our case countries except Kenya. The higher figure is estimated assuming that per student spending stays constant at 1978 levels. Spending per student could of course fall, as it is in some countries, but it could also rise, as it is in Mexico. This factor would have to be taken into account in a more detailed estimate of future costs. In any case, the gap looks especially large in Egypt, Mexico, and Thailand; is positive in Brazil and India; and is negative in Kenya, where enrolment rate increases in higher education have been relatively low in the 1970s and, thus, show relatively low projections to 1988.

Table 7 sums all the legitimacy gaps we have estimated. These are measured by the additional percentage of GDP necessary annually to supply

Table 4. Ratio of expenditure per student (first level = 1) in selected countries and years.

Country	Year	Public spending on primary/pupil at current market prices (U.S.$)	Second/first level	Third/first level
Argentina	1965	91.3	1.9	4.3
	1970	36.7	3.6	8.9
	1975	116.2	3.3	6.7
	1977	–	2.1	3.1
Brazil	1973	58.4[a]	2.5[a]	12.0[a]
	1978	75.4	3.9	15.0
Colombia	1965	12.7	1.8	31.6
	1970	9.4	2.0	25.1
	1973	16.3	1.6	7.5
	1978	47.1	1.0	5.9
Egypt[b]	1970	25.6	4.0	10.6
	1975	32.3	4.0	11.8
	1977	41.0	4.0	12.4[c]
	1978	44.6	4.0	11.0[c]
Ghana	1965	19.8	12.0	217.2
	1970	22.6	10.2	167.8
	1974	48.9	7.6	85.2
	1975	44.3	3.1	8.7
	1976	55.0	2.4	–
	1978	66.7	2.9	–
India	1965	5.4	4.9	46.7
	1970	5.5	4.9	35.7
	1974	13.6	1.7	7.9
Ivory Coast	1965	39.8	9.3	64.0
	1970	43.8	9.1	55.3
	1974	86.5	7.1	48.9
	1975	123.6	5.9	47.4
	1977	145.1	–	35.6
	1978	186.1	–	30.1
Kenya	1965	21.4	10.4	107.0
	1970	20.6	6.9	51.1
	1975	36.6	4.0	53.5
	1976	37.0	3.6	63.3

(continued)

Table 4 (concluded)

Country	Year	Public spending on primary/pupil at current market prices (U.S.$)	Second/first level	Third/first level
Mexico	1965	22.1	2.1	15.6
	1970	29.5	3.3	8.1
	1975	80.2	2.8	6.0
	1977	76.7	1.7	13.7
	1978	82.6	2.2	13.4
Pakistan	1965	9.7	1.2	16.6
	1970	10.0	2.2	14.4
	1974	9.8	2.1	17.2
	1975	13.6	2.0	17.1
	1977	11.5	2.4	22.1
	1978	17.2	2.5	–
Phillipines	1970	22.5	0.2	1.7
	1975	25.4	0.3	6.6
	1976	25.5	0.3	3.3
	1978	34.8	0.3	2.5
	1979	39.0	0.4	–
Tanzania	1965	16.6	14.6	179.0
	1970	21.2	11.1	131.5
	1974	24.1	9.5	126.9
	1975	21.4	18.5	219.0
	1978	27.1	–	–
	1979	28.1	11.9	–
Thailand	1965	12.4	3.0	19.4
	1970	15.8	3.0	26.2
	1974	24.3	1.6	16.8
	1975	35.7	1.5	9.1
	1976	37.8	1.5	6.5

[a]Approximate because of a change in definition of primary and secondary schooling in this period.
[b]Estimated by assuming 4:1 ratio between secondary and primary costs per student (this ratio is approximately that of other North African Arab countries).
[c]Approximate because number of higher education students extrapolated from growth rate in early 1970s.
Source: UNESCO Statistical Yearbook, 1980, 1981; and United Nations, Compendium of Social Statistics, 1977.

expected educational expansion in each country. Thailand and India have consistently positive gaps at all three levels of education. Egypt should have little difficulty meeting its secondary expansion pressure, but should have considerable difficulty in primary and especially higher education to meet pressures there. Kenya will have its greatest difficulties at the secondary level and in primary if it has to improve quality. Mexico has the greatest gap at the university level and, like Kenya, will have difficulties in improving primary education. Brazil appears to be in the best shape of the six countries studied, largely because of its high economic growth rate in the 1970s (which we used to project GDP to 1988). It appears that if the Brazilian growth rate continues at almost 12%/year, Brazil can do all the expansions and quality improvements we have discussed by increasing the amount spent on education in the 1980s by about one-half of 1% of GDP annually. However, if Brazil's economic growth rate is lower, say, 7%/year, the education legitimacy gap changes significantly: (a) primary expansion, −0.13% of GDP; (b) primary expansion with quality improvement, 0.75%; (c) secondary expansion, 0.58%; and (d) higher education expansion, 0.82%. The total gap without primary education quality improvement is 1.27% of GDP, and with primary quality improvement it is 2.15% of GDP. This exercise makes clear the crucial role of GDP growth for educational spending plans not only in Brazil but in all the countries studied.

The issue for some countries, then, if they hope to bring everyone into primary school and expand secondary and university education, is where the money is going to come from. This is not to speak of upgrading primary schooling or other levels, which, as we have seen, accentuates the crisis of educational expansion. The legitimacy gap, as we have defined it, should be considered a financial

representation of the kinds of pressures that have been generated for expanded schooling as a social "right." The amounts required to bridge the gap can be quite large. An additional 0.21% of GDP (matched perhaps by another 0.2% local funds) of added support for primary schooling in India (3 billion rupees annually, as of 1982, Rp 10.50 = U.S.$1.00) to bring all Indian children of primary school age through that level of schooling is not an insurmountable sum. Yet it is half again what the Indian government will spend annually on primary education in the coming years. Added to the pressures for improved primary education, secondary expansion, and higher education expansion that can be expected in the coming years, we find that India may have to come up with at least another 2% of GDP annually for educational expenditures. That is a sizable sum, but, interestingly enough, an additional 2%/year brings India's present 3% of GDP spent on education (this is probably central government spending only — as reported by UNESCO) up to the 5% level spent by Kenya. Yet even Kenya, if it is to improve primary schooling, would have to add another 1.5% of GDP annually to its education budget. Egypt and Thailand appear to have the greatest gaps, totally more than 3% of GDP annually. How are increases in the budget to be funded? What is legitimacy worth?

Obviously, these are political, not economic, questions. It is all well and good if educational spending contributes to economic growth and is, therefore, not completely a consumption good

Table 5. Public current expenditure (%) on education (distribution by level of education in selected countries).

Country	Year	First level		Second level	Third level
Argentina	1965	49.8		23.9	16.9
	1970	29.0		30.3	21.0
	1975	27.0		30.5	30.2
	1976	27.3		33.1	27.3
	1977	39.9		29.2	20.6
	1978	40.1		25.6	22.7
Brazil	1973	45.5		16.9	23.6
	1975		62.7		26.1
	1976		55.9		27.5
	1977		51.0		29.8
	1978	34.2		12.7	30.4
Colombia	1965	39.6		13.2	24.5
	1970	36.5		16.9	23.9
	1975	44.2		22.0	10.5
	1978	51.4		20.9	19.7
Egypt	1965		76.9		19.2
	1970		79.6		20.4
	1974		70.6		29.4
	1975		70.0		30.0
	1977		67.2		32.8
	1978		68.6		31.4
Ghana	1965	35.9		23.6	26.6
	1970	39.2		27.8	25.1
	1975	24.5		37.0	16.8
	1976	30.6		44.8	2.1
	1978	29.7		40.9	2.1
India	1965	23.3		42.1	23.1
	1970	22.2		42.5	24.6
	1975	21.2		40.3	22.0
Ivory Coast	1965	36.2		31.0	10.6
	1970	28.7		35.7	13.8
	1975	37.0		38.6	18.7
	1976	39.9		37.5	17.0
	1977	39.9		37.0	17.9
	1978	41.4		40.1	17.5

(continued)

Table 5 (concluded)

Country	Year	First level	Second level	Third level
Kenya	1965	54.4	29.5	13.1
	1970	48.8	31.9	13.6
	1975	65.4	18.8	11.0
	1976	63.1	18.8	13.0
Mexico	1965	42.2	12.5	12.7
	1970	47.7	27.2	10.4
	1975	42.9	31.1	12.6
	1976	41.4	18.2	22.4
	1977	40.5	19.5	28.8
	1978	36.7	23.0	25.2
Pakistan	1970	39.7	32.5	16.4
	1975	41.1	30.3	17.2
	1976	39.3	32.9	17.4
	1977	28.5	23.3	15.5
	1978	40.0	32.2	16.5
Phillipines	1970	82.9	3.9	13.2
	1975	80.0	8.0	5.4
	1976	65.7	6.7	22.4
	1977	61.4	7.1	25.9
	1978	57.9	6.7	19.9
	1979	54.9	8.8	20.6
Tanzania	1965	53.4	27.7	6.5
	1970	41.5	22.5	12.0
	1975	37.3	22.3	12.8
	1976	50.5	25.5	12.6
	1977	56.8	23.4	15.0
	1978	47.0	15.7	11.1
	1979	46.6	13.1	11.7
Thailand	1965	67.2	16.7	9.3
	1970	53.5	19.5	13.8
	1975	62.5	16.2	11.1
	1976	60.2	17.9	10.1
	1977	60.2	17.9	10.1
	1978	60.0	20.8	11.5

Note: Figures do not equal 100% because other types of educational expenditures (e.g., early childhood, nonformal, and adult education) are not included.

Source: UNESCO Statistical Yearbook, 1977, 1980, 1981.

(either private or social), but the decision to invest in education and how and in what levels to invest are political, resting on distributional and political legitimacy considerations.[6]

[6]We must be careful in comparing the various percentages of GDP spent on primary education, because each country funds primary in different ways. For example, in Kenya, students pay fees even in public primary schools, whereas in Mexico and Thailand a very high fraction of the primary education budget is funded by the federal government. In India, the states direct primary education and fund a large fraction of it. Similarly, the ratios of university and secondary per pupil costs are affected by such differences, because university education is usually centrally budgeted whereas primary spending is much more decentralized. UNESCO figures generally reflect only the centrally funded portion of total spending.

The Political Economy of Financing Education

The educational investment choices and the information informing those choices in developing countries have been outlined. Except under extreme authoritarian political regimes that can successfully repress any democratic pressures, including those for increased access to public education, formal education will expand in developing societies, if for no other reason than education's symbolism, partly represented in reality, of potential social and economic mobility. Indeed, states in developing societies, as well as many transnational enterprises and international lending agencies, have fostered and promoted this symbolism, possibly for differ-

Table 6. Actual and projected public spending on higher education in selected countries, 1978 and 1988 (millions of local currency in constant 1978 prices). (The values within parentheses are percentages of GDP.)[a]

Country	(1) Actual (1978)	(2) Projected at constant 1978 % of GDP (1988)	(3) Projected if current growth continues (1988)	(4) Legitimacy gap (1988)
Brazil	29600	91100	112400	21300
	(0.86)	(0.86)	(1.07)	(0.21)
Egypt	114	184	396	212
	(1.38)	(1.38)	(2.96)	(1.58)
India	5800	8450	12200	3750
	(0.60)	(0.60)	(0.86)	(0.26)
Kenya	218	526	295	−231
	(0.51)	(0.51)	(0.29)	(−0.22)
Mexico	17600	29500	64100	32300
	(0.84)	(0.84)	(1.68)	(0.84)
Thailand	1260	2600	9600	7000
	(0.28)	(0.28)	(1.04)	(0.76)

[a]Column (1) and (2), see Table 1; column (3) = 1970–78 enrolment growth rate in higher education used to project enrolment to 1988 (this figure was multiplied by 1978 per higher education student public spending (UNESCO data) to get the figure for each country in this column); and column (4) = column (3) minus column (2).

Table 7. Total potential legitimacy gap as a percentage of GDP in selected countries, 1988.[a]

Country	(1) Primary education expansion gap	(2) Primary expansion with quality improvement gap	(3) Secondary education expansion gap	(4) Higher education expansion gap	(5) Total gap without primary quality improvement	(6) Total gap with primary quality improvement
Brazil	−0.43	0.12	0.24	0.21	0.02	0.57
Egypt	0.28	1.64	−0.10	1.58	1.76	3.12
India	0.21	0.88	0.90	0.26	1.37	2.04
Kenya	−0.93	0.88	0.90	−0.22	−0.25	1.56
Mexico	−0.26	0.70	0.06	0.84	0.64	1.60
Thailand	0.41	2.30	0.42	0.76	1.59	3.48

[a]Column (5) = column (1) plus column (3) plus column (4); and column (6) = column (2) plus column (3) plus column (4).
Source: Tables 1, 2, and 6.

ent reasons. From the state's point of view, expanded education helps legitimate the state itself. Increased spending on schooling mediates pressure by various groups for public services and better socioeconomic opportunities for their children.

At the same time, increased schooling may contribute significantly to economic growth and to more equitable distribution of earnings. Thus, investing in schooling may serve to increase growth rates, redistribute earnings and legitimate the state. But in some countries, as we have shown, if the total demands for expanded and improved formal education are to be satisfied, the percentage of total product going to educational spending may have to be increased substantially. Will such increases in spending cut into other investments and reduce growth rates? If social pressures for increased educational spending are great, how should governments finance this spending? If choices have to be made, which levels of schooling are more politically "crucial" and which less? Do some patterns of spending contribute more to more equal earnings distribution?

These are precisely the educational finance decisions that face government. The way it resolves those decisions is in part a function of the groups it feels are most likely to destabilize the society if their demands for increased schooling (and implicitly an increased share of national product) are not met. Furthermore, other groups, such as various parts of the business community and the Church, may also be involved in this decision process. Once the decision is made, who is to pay for the increased educational spending?

There is relatively little literature that explores these decisions and how they are resolved. In two

studies, one on Colombia and one on Brazil, J.P. Jallade (1974, 1976, 1979) concludes that educational expansion per se does not equalize income distribution. Investment in education, he argues, could be considered by planners as any other form of investment, except for the fact that it is a public investment and is financed by the state. In that sense government action in providing public education is used, or ought to be used as a means for counteracting unequal forces in the "free" marketplace derived from the existing distribution of income, which favours children of higher-income families in getting more and higher-quality schooling. Jallade argues that any policy that establishes progressive taxes and subsidies (inverse to income) for education will tend to equalize access to education in the short run (and, therefore, tends to have an equalizing effect on income distribution). In the longer run, the privatization of education (higher-income families sending the children to private school) could eliminate the positive effects of increased educational subsidies to the poor. But such privatization can be diminished by a progressive taxation policy that makes it increasingly expensive for families to avoid sending their children to public school, and simultaneously raises the quality of public schooling to the point where it does not pay to invest in private education.

Thus, Jallade concludes that the way education is financed is much more crucial to an income distribution policy than the provision of education per se. Education that is financed through progressive taxation has a greater impact on post-tax, post-benefit income distribution than regressively financed education. On the other hand, the equalizing effects that do occur, take place through expenditures on primary schooling, precisely that level of schooling that reaches the lowest income groups in the population. When each level of education is examined separately, Jallade argues, it appears that only the public financing of primary education has a strong and positive redistributive effect on income. In Colombia, furthermore, the results indicate that an important redistributional effect occurs because higher income families choose to send their children to private schools, hence paying taxes and school fees. Thus, although one way to redistribute income is to foster a small private educational system that increases the educational cost burden on the rich, this way to equalization may turn out to be socially and economically divisive in the future; privately educated students will probably get better schooling, greater access to higher levels of education, and higher income payoffs at each level. Thus, progressive taxation seems to be a more likely route to greater equalization, with the increased taxes spent more on expanding and improving primary education than on higher levels.

Jallade points out, however, that even the success of such a tax policy could be offset by future changes in the relative returns to different levels of schooling (this is the same point we raised in our discussion of Langoni's results for Brazil). Each peso or cruziero transferred to the poor by increasing their primary education may become less valuable relative to pesos transferred to higher-income families whose children continue on to secondary and higher education. Similarly, he goes on, a transfer from the rich to the poor through the public provision of education may be offset by a transfer from the poor to the rich through the provision of another public good.

The analysis in the Colombia and Brazil studies indicates the important role that financing itself can play in the distribution process. It also affirms, along with Fishlow's work (1973), that spending on primary schooling has the greatest distributional impact on income from a tax–benefit perspective, although the degree of this impact can diminish if the relative value of primary versus secondary/higher education decreases. Finally, it introduces the important role of private education into the distributional equation, and how private education can contribute to or offset any attempts at income equalization.

Thus, from a distributional point of view, there is little question that investing in primary education and financing that investment through progressive income taxation would have the greatest impact on equalizing consumption in the present generation (assuming that education is valued as a consumption good). Whether it has important impact on future income distribution depends on the future payoffs to each level of schooling. However, it is not nearly as clear as some analysts claim (see Colclough 1980, for example) that primary education contributes more to productivity per dollar spent than secondary or higher education. So the redistributive power of primary education spending may have growth consequences. In addition, overall educational spending may not contribute to overall growth as much as investment in other infrastructure, and this, too, may have growth consequences. Thus, there may be a trade off between distribution and economic growth resulting from educational investment (then again, there may not be). The importance of this trade off for education itself, as we have shown, lies primarily in the amount of government revenue available in the future for educational spending. This, in turn,

can have long-run consequences for the possibilities of meeting all the demands on the educational system by various groups struggling for increased public services.

Jallade shows that one alternative for governments in this bind is to increase taxes, progressively, to finance more schooling out of the present gross product. But, as he is quick to point out, the possibilities of such a policy, for all its positive effects on income distribution and the expansion of schooling, depends on the political situation in a particular society. With much of the private wealth of developing societies in the hands of high-income individuals (in some countries, these high income individuals are state bureaucrats), the effect of increasing taxes — even if the law were passed, would certainly have a significant influence on private investment in the country. One alternative is to tax foreign enterprises and the individual recipients of higher education. Taxing transnational companies could only work if all developing countries agreed on a standard education tax, so that individual governments would not compete for foreign investment dollars by not imposing the tax. Charging individual recipients for higher education (providing scholarships for low-income university students) has the same political consequences as not expanding free higher education; it is a policy vehemently opposed by the middle class (not necessarily by the rich, who send their children abroad in any case). These are all good suggestions, but they have their political ramifications. Each solution to the legitimacy gap is a political solution, whose financial implications infer political conflict.

Opportunities for Reducing Costs

This brings us to a second major issue regarding the dilemmas that have been raised. Up to this point we have assumed that the traditional methods of providing education are the ones that will be followed. However, these are very costly with respect to the ability of developing societies to meet the demands for expansion and rising quality while addressing the needs of the least-advantaged members of society. Are there lower cost alternatives that might provide the same results at a cheaper cost than the traditional models? Certainly nonformal educational methods, distance learning, and various educational technologies have been proposed as ways to meet expansion needs at lower cost. However, at the moment there is little evidence that any of these can provide a consistent and high quality educational outcome at a lower cost than the traditional methods.

Nonformal methods have generally been tried for only limited learning tasks such as adult literacy, health education, or farmer training. That is, they do not cover a large and integrated curriculum that encompasses what we expect people to learn in a minimum of 7 years of schooling. This is not to say that such an endeavour is impossible. It simply means that it would take much more organizational knowledge, skills, and experience to even attempt. At the point that nonformal education becomes more ambitious, it may take on the same broad characteristics of the present formal educational system in terms of bureaucracy, professionalization, and costs.

Distance learning has not been demonstrated to reduce costs, once one controls for the number of persons being educated and the quality of their education. With respect to the Open University in Great Britain, one study found that there might be no cost savings at all once educational results were accounted for (Carnoy and Levin 1975; Lumsden and Ritchie 1975). Even educational radio and television and other educational technologies have not demonstrated an ability to reduce costs for a full learning system. For one thing, they often become an adjunct to the conventional schools — where their potential is greater for raising quality rather than reducing costs. Carnoy and Levin (1975) have shown that despite the important claims that such technologies can produce standard educational results at lower cost, the studies that have attempted to demonstrate the claim are beset with what have been called "benefit of doubt" biases in favour of the technology. Standards of performance have been constructed that favour the technology over traditional methods, and cost-accounting approaches have invariably used "estimated" costs for the technology (experience indicates that such estimations invariably understate true costs) or a calculation of "actual" costs that fails to include important cost elements.

This does not mean that educational technologies cannot be part of the solution. What it does mean is that there are no miracles in that direction, and one should not assume in some facile way that there are. Work should continue to proceed on applications of the new technologies to education, but one should continue to be wary of incautious claims. One major reason that the advocates of educational technology often get euphoric in their prophecies is that they often have a hardware-biased view of costs and performance. As a study of the costs of computer-assisted instruction (CAI) by Levin and Woo (1981) has shown, about three-quarters of the total cost is attributable to factors that are not related to the equipment (e.g., facilities, mainte-

nance, teachers, and curriculum software). Experience has shown that this ratio of hardware to other costs is probably reasonably representative. Even if the cost of the hardware falls to zero (an obvious absurdity), the overall cost of delivering educational services would fall by only 25%. In a more realistic case, where hardware costs may fall by 50%, the overall costs would decline to about 88% of the original figure.

By assuming that all cost will fall as the cost of hardware has fallen during periods of rapid technological innovation, a simple extrapolation is made to suggest that future costs of technologies will be highly competitive for a full curriculum. The assumption that all costs fall at the rate of reductions in hardware costs during such unusual periods and that an extrapolation can be made to the entire curriculum is without foundation. One can obtain a hand-held calculator today for under U.S.$10 with the same capabilities as one that would have cost over U.S.$100 some 10 years ago. However, such a comparison is between the highest cost at the beginning of commercial exploitation and the lowest cost at which the market has settled. Costs of silicon chips may continue to drop, but this will have little influence on the overall cost of production of a product in which the chips represent only a small proportion of the total cost. More to the point, has the cost of teaching arithmetic dropped precipitously because of the availability and use of low-cost, hand-held calculators? Is there evidence that educational quality has risen in this domain because of the calculator phenomenon? These questions are raised to dispose of the often naive views held by educational planners that low-cost technologies will solve overall cost and quality problems in expanding education.

Finally, there are the various political issues that must be faced in the search for cost savings. If we assume for the moment that distance learning is cheaper than traditional schooling and achieves the same results, why does this phenomenon not hold for all groups in society? Distance learning has only become important as we face the difficulty of integrating the "late arrivals" from the lower social strata into secondary and higher education. In the case of Great Britain, there seems to be no attempt to displace the "redbricks" and Oxford or Cambridge with an open university approach. That is, whatever the benefits and costs of an open university, they seem to be considered only in relation to those who have not traditionally had access to the standard approach. We should be aware that low-cost approaches become the standard answer to solving problems of educational expansion for lower social classes. If the innovation is so attractive, why does it not displace the institutions serving the middle and upper classes? The fact that cost issues and cost-saving technologies seem only to arise when the system is expanding to absorb subaltern groups may, in itself, suggest that those groups may become a source of rising political opposition.

But one must consider another source of political resistance. Of all labour groups in developing societies, teachers are often the best organized to defend their interests. Consequently, it is no surprise that despite the claims that educational television can substitute for teachers and reduce costs in that manner, there are no examples of such substitution. Instead, such technologies are usually added on to the existing curriculum and a new rationale is substituted for that of cost-savings: the innovation is to serve as a means of improving the quality of the traditional system; that the costs are, thus, higher than before is not mentioned. To a large degree this change is an accommodation of political reality rather than a planned change in focus.

Data Improvement

A final area of improvement that is suggested by this report is that of the provision of data. It is virtually impossible to obtain accurate data on any aspect of educational costs and expenditure for the vast majority of developing societies. In our own estimates of the spending gaps and needs, we have readily acknowledged the dubious quality of the data. For purposes of planning and analysis, it would be desirable to obtain a standard classification of information that would be accurate and available on a systematic basis. One model for setting out data accounts might be taken from the standard accounting handbooks of the U.S. Department of Education. In the U.S. there are some 15000 local school districts with their own autonomous spending patterns. The federal government developed a standard approach to accounting and cost measurement that enables a reasonably uniform assessment of costs. The most recent version (U.S. Office of Education 1973) even establishes various cost-accounting practices that enable more refined analysis.

However, once again we are fully aware that even data are political prisoners in the sense that accurate reporting would reveal the large regional and other geographic disparities in spending as well as the gaps among schools serving different populations. In this sense, accurate data do not always serve the internal political interests of societies that claim to be democratizing educational

access and quality. Yet, without more accurate cost information, useful analyses are often impossible to construct and, therefore, policies must necessarily be made on the basis of assumptions that may or may not be valid.

The analysis presented identifies basic political, economic, and social aspects of education that have important cost and finance ramifications. We have pointed out what has been learned in the last decade about the relation between education and the various aspirations toward equality, growth, and participation in developing countries. We have identified various obstacles to meeting those goals and have suggested policy directions. Political issues have also been raised that pertain to these goals and the various alternatives to solving the finance and cost issues have been explored. If the answers are not wholly satisfactory and raise still more questions that must be addressed, one should remember that as a circle of light enlarges, so does the perimeter of darkness. We have focused on the circle of light and its enlargement, but we have no control over the basic laws of plane geometry regarding the size of a circle and the magnitude of its perimeter.

A Review of Educational Innovations to Reduce Costs

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This paper examines various educational innovations that result in cost reductions made possible by increasing the number of students served, decreasing the number of teachers needed, diminishing waste (i.e., improving the retention and promotion of students), or augmenting the share of community contributions to educational costs.

Innovations are categorized here in terms of the amount of financial resources needed for implementation. Thus, three broad types of innovations are discussed: those occurring through the introduction of educational technologies such as radios, television, and self-instructional modules; those involving various nonformal education programs; and those that can take place through the manipulation of ordinary elements of the formal school system to improve its internal efficiency.

The review finds that educational technologies, especially radios and self-instructional modules, are effective in producing student learning and can result in student costs much lower than those incurred by the regular schools. Innovations in nonformal education can produce positive economic and social changes at the community level, particularly in rural areas. At the same time, these innovations are relatively inexpensive given their heavy reliance on voluntary support at the local school level by both community members and program participants. Within the regular educational system, 19 innovations designed to increase the internal efficiency of schooling are listed. It is argued that many of these innovations call for a restructuring of present educational budgets rather than new funds.

The article concludes by noting that much remains to be learned about educational costs and that more studies are needed to focus on the school as the unit of analysis because it is this level that appears to be the most sensitive in the identification of sources of inefficiency as well as sources of additional economic support for schooling.

A dilemma increasingly assailing educational systems in developing countries pits the need to expand education of reasonable quality, so that it may reach growing or unattended populations, against inadequate resources to accomplish this task. The purpose of this paper is to present a review of prominent cost-reducing innovations implemented in the last 15 years. This review is limited to the experience of developing countries and to innovations aimed at population groups considered essential for national development, such as the young and adults within the economically active labour age. For reasons of focus, this review does not consider the tertiary level of schooling.

Although the subject is cost-reducing innovations, the reader will not find numerical tables showing cost comparisons. First, comparisons are possible only when innovations are within formal education systems and their costs can be contrasted with those in traditional programs. Second, educational cost analyses should not rely on cost–benefit ratios based on the comparison of one single output, but should consider a wide range of positive outcomes (what economists call cost effectiveness). Third, in the case of nonformal education innovations, costs are elusive because in many instances they derive from individual commitments and contributions that might not have taken place in the absence of an innovation. Fourth, to present numerical values attached to innovations might convey the false impression that these values are stable and independent of the assumptions on which they were based and the contexts from which they emerged.

Miles (1964, p. 14) defines innovation as a "deliberate, novel, specific change, which is thought to be more efficacious in accomplishing the goals of a system." The concept of innovation used in this paper is broader. In some cases, it refers to a radically new component or set of components in a given educational context; in others, it refers more to the intensity or comprehensiveness with which a measure is applied than to its "newness." The notion of "system" explicit in Miles' definition is not always relevant because many of the innovations operate outside the established educational system. In fact, in some instances the mere existence of nonformal innovations challenges the role of the standard educational system in accomplishing promised goals.

Innovations in Developed and Developing Countries

After examining the literature on educational innovations in general, several observations can be

made. First, it is clear that most of them have been attempted because their designers or advocates were convinced that they worked rather than because they were cheap. Cost analyses to show the economic effectiveness of the innovation emerge almost exclusively at the demand of potential financial backers who, upon learning of the innovation, wish to consider the possibilities of wide-scale replication. A result of this is that the costs of many innovations have not been analyzed.

Second, the educational innovations that have occurred in developing countries are quite different from those in developed countries. In developed countries, innovations have occurred primarily to improve the quality of instruction within the formal education system. The emphasis has been on teaching and learning and on school-age groups. In consequence, the overwhelming number of innovations in North America and Europe has been limited to classrooms and students and has taken the school–teacher–student relationship as a given. Innovations common in developed countries have dealt with curriculum content (new math, new science, social studies, and modern foreign language projects), methodology (discovery learning, individualized instruction, and computer-assisted instruction), and class organization (unstreamed classes, nongrading, and team teaching) (Bassett 1970; Von Haden and King 1974). Even alternative schools, constituting perhaps the most comprehensive set of innovations within developed countries, are still attempts to explore quality improvements within the formal education system.

In contrast, innovations in developing countries have been sought primarily for reasons of equity, relevance, access to service, and costs. Although several innovations attempt to improve the quality of schooling, many are being tried to expand the numbers of those served, to improve access to education for disadvantaged groups (the rural and urban poor), and to make the educational content more relevant to national development needs.

Third, the adoption of innovations in developed countries has usually been at the school level. School principals and superintendents have been key actors in the decision to try new practices. In developing countries, the adopters within formal education have usually been national government agencies. In nonformal education, they have been groups working with either government agencies or church institutions at the community level.

Fourth, most innovations are characterized by external triggers. In developed countries the role of federal or state governments working under legislative mandates, has been crucial to the emergence of innovations and their sustained implementation. In developing countries the triggers have been international aid agencies working through loans and grants, which have given innovations a predominantly experimental, temporary character. Even nonformal education innovations are initiated by external influences. In this case, however, the external agent does not provide extensive funding but rather seeks to convince community groups to contribute significant amounts of time and labour.

Despite similarities in certain aspects, innovations in developing countries present substantial differences from those in developed countries. These differences have repercussions for the emergence of these innovations, the pace of implementation that has characterized the innovations, as well as for their stability or institutionalization.

Cost Analysis: Meaning and Limitations

Analyses of costs represent attempts to render investment decisions rational. The most logical way to choose among alternative investments is to compare anticipated benefits against required resources. This reasoning has been applied to educational decisions for some time. Major difficulties remain, however, regarding the concepts being used, the assumptions made to measure these concepts, the suitable referents in comparing costs, the methodologies used to ascertain cost–benefit ratios and cost effectiveness, and the tendency to quantify benefits of diffuse nature or outcomes that have different values depending on the social or personal objectives.

Cost would seem to be a concept easier to measure than benefit or effectiveness. Yet, problems emerge when one confuses cost with expenditure, the latter referring to costs described in official budgets. Most economic studies of the formal education system have emphasized the analysis of public costs and ignored investments and contributions by other sectors. This has been due mainly to two factors: there are obstacles to obtaining information on nonpublic costs and, all too often, it has simply been assumed that nonpublic contributions are minor in comparison to the contributions made by the government. Yet, there is evidence that public educational systems seriously underestimate the real costs of schooling because contributions by families and communities are not considered in traditional budgets.

There is a consensus that opportunity costs should also be considered, especially in the case of adults. But it is difficult to determine the opportunity costs of people who are studying and who

otherwise may or may not be participating instead in the labour force. Furthermore, the behaviour of an imperfect labour market does not lend itself to long-term projections and it is impossible to quantify indirect benefits of a cultural and social nature.

Unfortunately, there has emerged a dividing line between studies based on disciplines, such as history, sociology, and anthropology, and those using an economic approach. It has been considered that economic costs are more relevant given the empirical base on which they are built. The economist's approach has tended to produce information aggregated at macro levels, which has not permitted an understanding of how costs affect the quality of the process. This approach has also detracted attention from the school as a focus for analysis, despite the fact that the school is the most critical organization unit in the formal education system. Another shortcoming of the economic approach has been its inability to see how schools articulate with their immediate social context and what dynamics emerge through the contribution of different groups to the support of the educational system. Even in the case of innovations, where program designers have full knowledge of the inputs needed, the calculation of costs is not easy. Costs do not exist independent of the social context in which they operate. Many factors affect the level and quality of the required resources, and this, in turn, accounts for a great variability in costs for similar innovations across settings.

The concept of benefit is more complex than it seems. In studies of impact or effectiveness at the social level, it is not possible to determine precisely the consequences derived from changing the relationship between educational inputs, such as substituting capital investments for labour, or from producing people with different skills and aspirations. More critically, the value of a benefit varies depending upon the population selected to receive the benefit. The incremental benefits produced by an innovation for rural and marginal urban groups might be considered greater — under certain political regimes — than those produced by the same innovation for middle-class groups. The same could be said for the proletariat/bourgeoisie and society/individual dichotomies.

In terms of educational benefits, the tendency is to measure cognitive benefits, which often translate into measures of math and reading achievement. Although there is a strong consensus on accepting affective outcomes as extremely important, these tend to be measured rarely. Other educational benefits are measured in terms of gross indices of enrolment, graduation, income, or other quantifiable data. These indices do not tell us about the content of educational programs and their intended and actual social effects. They are used too often to infer cause and effect and in doing so have reified several untested assumptions.

Even apparently innocuous indicators of cost–benefit, such as annual program costs or annual cost per student, involve a number of implicit assumptions. Kamik (1979) notes, for instance, that annual cost per student assumes: (a) no differential benefit in reaching one group of students against another; (b) student gains, however defined, are similar within any group for a given exposure; (c) the quality of programs is an irrelevant or an invariable factor; and (d) the secondary impact on teachers or others is negligible.

Finally, two methodological weaknesses should be noted. First, it is quite possible for a treatment or innovation that has a weaker impact than others to be more cost effective if its costs are low relative to other treatments. Second, the social sciences have not yet devised a technique by which to assess the impact similar financial investments might have on alternative economic and social sectors. In other words, we are not presently capable of comparing the impact derived from investments in the educational sector to possible choices in housing, health, transportation, agriculture, or industry. In short, we use cost analysis as a guide to more rational decisions, but it is undeniable that it is a tool subject to numerous weaknesses.

Analytical Approach

The various innovations discussed are presented according to a classification that lists them by decreasing order of financial requirement. Thus, it begins by exploring educational innovations to reduce costs via the introduction of technology, which necessitate a significant capital and operational investment. Then follow innovations within nonformal education, which require a series of inputs in kind and labour and place less emphasis on financial inputs. Next are innovations to improve the internal efficiency of formal educational systems (all of which are measures that in principle could be achieved with existing resources). Finally, the review concludes with an analysis of a methodological innovation to study the meaning of educational cost itself.

In discussing each innovation, an attempt is made to consider benefits and costs in their wider sense. Hence, reference is made to social (program implementation) and personal benefits and costs. In addition, an attempt is made to capture not only

quantitative but also qualitative impacts of the innovation within the limits of the available data.

Because many innovations, particularly those in the area of nonformal education, are circumscribed to specific communities, costs and benefits of these innovations are discussed also at the community level. This is especially relevant in cases where national development is not equated to industrialization and where the rural sector is supposed to be revitalized by improving the unit of rural life, namely the community or village.

Table 1 defines the categories of costs and benefits that are considered in this review. These categories then become the guiding criteria for describing the relative value of the innovations and for comparing them against traditional treatments. The description of innovations is organized by the innovations' key features rather than by project names.

Data sources for this review include unpublished and published project reports, journal articles, internal and external evaluations, and books. Sources vary tremendously in academic rigour, ranging from impressionistic statements of cost reductions (as often happens with nonformal education innovations) to sophisticated cost effectiveness analysis based on data derived from carefully designed experimental situations (as is the case in the U.S.$1 million evaluation of the Basic Village Education project in Guatemala). The information available for analysis is inconsistent, and this is unavoidably reflected in the review. Inferences of quantitative reductions in costs as well as qualitative benefits are drawn from both the

Table 1. Categories to consider in quantitative and qualitative analysis of costs and benefits associated with innovations.[a]

Costs	Benefits
Personal	
Direct and indirect expenses associated with program participation. These would include materials, personal time, transportation, and other forms of contribution made to the programs (Blaug 1970, pp. 169–199; Vaizey 1972, pp. 62–71).	Outputs are felt most immediately on a personal level in terms of changed behaviours and attitudes. Changes that occur on cognitive, skill, and affective levels can be measured both quantitatively and qualitatively.
Opportunity costs (those costs in foregoing personal gain that would have accrued from other activities, including work alternatives, learning experiences, and recreation). Opportunity costs are considered very important measures of private (personal) and social costs (Borus 1974, pp. 36–40; Ahmed 1975, pp. 47–48; and Hallak 1969, pp. 16–19), but seldom carefully incorporated in cost analysis.	
Social	
Expenditures on capital (equipment and facilities), staff development (teachers and field workers), and organizational delivery support systems (bureaucratic and other forms of external support).	Benefits to society from formal and nonformal education are not easy to determine. Indicators such as gross statistical indices of employment, migration (Rogers 1969, pp. 212–222; Todaro 1971, pp. 387–413; Myers 1972, pp. 207–228), and productivity, offer information from which cause and effect relationships can only tentatively be drawn. These indicators should be used in conjunction with other referents of social development, such as quality of life indicators in health and nutrition, for example (Harbison et al. 1970, pp. 2–20). A composite picture of social development can be drawn only from a number of quantitative and qualitative sources that have been compared and contrasted with respect to standards that are derived from the value-centred goals a society has chosen for its development (Kiros et al. 1975, pp. 1–8). The path to achieve these goals is ideological (Paulston 1979).
The allocation of scarce resources exclusively to program activities. These involve opportunity costs (Bowman 1969, pp. 69–92). They may even have negative consequences for the quality of life locally. Examples of such costs include the construction of community education centres whose programs result in the outmigration of newly skilled people.	

(continued)

Table 1 (concluded)

Community	
Community costs relate very much to education's role in development. Although direct expenditures of money and resources involve monetary costs, real costs to a community for supporting educational programs include negative changes in social climate, expenditures of tangible resources, and energy commitments.	Qualitative and quantitative indicators of benefits applicable on social and personal levels can also be applied to communities as well. Furthermore, the goals of a particular project as they affect the community are an additional source of data on which to base an evaluation of outcomes. Dahlgren (1972, pp. 35–49) stresses the utility of using the goal itself as a tool for decision-making and evaluation in a systems approach. Properly formulated goal statements can help in the effort to determine linkages and conflicts between project goals and outcomes on a community level. Kinsey (1978, pp. 2–8 and 22–24) suggests an important qualitative clue to community involvement in the development process might be the extent to which learners themselves are included in the evaluative process and are in control of subsequent decisions. Ward (1974, pp. 198–288) offers many potentially useful suggestions for structuring evaluation for community involvement.
Undertaking educational innovations requires groups of people to make investments in terms of the attitudes and normal patterns of behaviour they have chosen to abide by in relating to each other as members of a community. These patterns and attitudes contribute toward a social climate or a sense of identity that is basic to people who share their lives together (Frey and Ross 1967, pp. 21–26). Throughout history members of communities have developed commonly acceptable approaches to solving problems, a consensus on values, and socialization processes that are unique to each of their communities (Tupounius 1977, pp. 12–25). Education for development presumes to have perceptible effects on this climate. Therefore, the community investment necessary to achieve intended effects comes at a price or modification in the climate the community has chosen to live by in its historical development.	
Communities as such exist within a framework of a consensus on resources to be applied for the local common good (Frey and Ross 1967, pp. 45–49). An educational undertaking usually commands a portion of these nonmonetary resources, e.g., space and materials.	
Members of a community are usually prepared to devote a portion of their attention to the common good. Educational activities consume part of this community time. No matter what the intended outcome of the specific project may be, people have limited amounts of energy they will devote to community and self-betterment activities (UNDP 1979, pp. 63–66). Therefore, there is a hidden price that the community pays for educational programs.	

*The differences in the personal, social, and community benefits included in the table correspond, generally, to the concept of educational outputs and outcomes described in the World Bank (1980b, pp. 30–41).

statistical information available in the documents and the narrative conclusions of their authors.

Innovations Introducing Technologies

This section reviews a number of innovations that involve primarily the application of hardware technologies (e.g., radio and television) or the introduction of instructional technologies (e.g., self-instructional materials for students and teachers). These innovations have been tried mainly with populations within the formal education system, but they have also been used in nonformal education experiences.

Three characteristics of technological innovations are their attempt to reduce costs by substituting labour (teachers) with capital (technology), to improve the quality of teaching by complementing instruction or by bypassing poor teachers, and to permit a rapid expansion of the educational system. Unlike other types of innovations, technological experiments have tended to be accompanied by careful and complicated cost analyses. At the same time, it appears that the success of technological innovations is highly dependent upon particular circumstances of implementation. Thus, analysis of

four studies of educational television (ETV) projects found student costs to range as high as a factor of seven, and studies of four radio experiments showed that student costs ranged as high as a factor of 18 (Eicher 1977). Looking at ETV in terms of cost per hour of program in 10 different projects, differences have been found to be as high as 57 times the cost of the cheapest program (Orivel and Jamison, undated).

Use of Educational Radio

Formal Education

In formal education innovations using radio are becoming increasingly popular. They have been used with young children as well as adults, mainly with marginal populations, and generally centred on closed (i.e., group) audiences. Features of radio innovations in formal educational settings are:

- Radio lessons usually last between 15 and 25 minutes. About two to three lessons per week are given per subject;
- Only core subject matters are covered;
- Radio lessons complement official curricula conveyed by the classroom teacher; and
- Written materials, such as teacher's guides for suggested activities to complement the broadcast, are used.

In terms of costs, radio does not produce any additional personal costs beyond the foregone income already incurred by attending public school. Social costs include expenditures related to curriculum adaptation costs; equipment for radio production, transmission, and reception; teacher training; and materials production. So far, whenever radio has been applied to a formal education system, it has been used mainly for enrichment purposes as an add-on program. This type of radio program has been found to be cost effective not because the cost of the innovation was equal to or less than the traditional system, but because, although it cost more, the benefits were greater (Orivel and Jamison, undated).

A cost analysis of radio programs in Nicaragua for primary students in grades one to four found that the radio lessons represented an added cost of U.S.$3 to the annual U.S.$54 per student enrolled in elementary education, and if the costs were calculated in terms of first-grade graduates, it would be U.S.$87.34 compared with U.S.$99.50 for counterparts in the regular program (Jamison 1978, p. 219). An evaluation of *Radioprimaria* in Mexico, a program designed to provide schooling for rural students in grades four to six, also showed lower costs per student compared with those in the regular school. These savings occurred mainly because the radio lessons made it possible to combine the three grades under one teacher (UNESCO 1977).

Several benefits have been linked to radio as an innovation. Personal benefits include student gains in cognitive tests. Evaluations of math radio programs in Nicaragua indicate that students exposed to radio lessons learned more math than comparable students in regular classrooms at all grade levels of that project (Jamison 1978; Friend et al. 1980). These studies also found that rural students benefited somewhat more than urban students because the difference in the performances between urban and rural students in the radio classrooms decreased. Students with radio exposure seemed to retain more of their knowledge of math because they scored higher on math achievement tests than students without exposure when tested at the beginning of the following year. Furthermore, boys and girls of equal ability were found to learn equally well (Friend et al. 1980, pp. 121−139). Preliminary data from the Nicaraguan project also showed that students taught by radio tended to drop out less, but it is not clear whether this happened because students liked their classes more than before or simply because of the particular characteristics of the school in the experiment.

The Nicaraguan radio innovation was tied to intensive curriculum development, so it is impossible to isolate media from content effects on student achievement. Furthermore, this innovation was conducted as a pilot project under very special circumstances; the high interest in and acceptance of the project by the selected site, propitious physical and technical information of the country, willingness to work with the developers of the innovation, and instruction conducted in the native language of all children (Friend et al. 1980). The project also had excellent leadership and management throughout.

In terms of social benefits, it appears that radio programs aimed at out-of-school rural students have been able to provide them with access to education. This has been the case with *Radioprimaria*, which served students otherwise unattended by the school system. In doing so, the innovation has contributed to educational equity and, thus, eventually to the development of a more egalitarian society.

Distance Education

Distance education programs have been aimed at older populations, now out of the regular school system, who seek an equivalency diploma. Characteristics of distance education include:

- Heavy use of educational materials (lessons, study guides, textbooks);
- Limited or no meetings with a tutor; and
- A tendency to rely on user's fees for program support.

Three notable examples of this innovation are the Kenya In-Service Teacher Training, the South Korea Air Correspondence High School, and the Radio Escuela Santa Maria (Dominican Republic). Personal costs of these programs normally include matriculation fees and purchase of material. Personal costs in the Kenyan project were high, but individuals were motivated to incur them because of the anticipated status and salary promotion. At one point, both the Kenyan and the Korean projects were financed almost entirely by user fees. Because lessons are broadcast in the evening, opportunity costs are low or nonexistent. Social costs are similar to those of classroom radio programs plus the cost of production and distribution of educational materials and costs of hiring people to correct assignments and mark tests. Costs per student tend to be low because no physical facilities are needed — even though this innovation requires solid and reliable infrastructures for the production of materials (printing facilities) and their timely distribution through a reliable postal service. Annual costs per student enrolled in the South Korean program were 24% of the costs of those enrolled in the regular high school; the costs per graduate student from the radio program were 29% of those in the regular school (Jamison and Orivel 1981). In the case of Radio Escuela Santa Maria, costs per enrolment were half those of the traditional adult school.

Benefits are significant at both the individual and social levels, although the quality of the evidence is low. The Kenyan case, which sought to provide unqualified primary teachers with a primary school teaching certificate or junior secondary school diploma, was eminently successful in that most of its 12 000 enrollees passed the national exams and, thus, qualified for promotion and higher salaries. In fact, personal benefits were so great that they resulted in significant social costs for the government, which, 5 years after the innovation was under way, had to abandon its policy of automatic teacher promotion. In the absence of incentives, enrolment dropped by 1980 to 5% of that reached in 1969 (Eilers, et al. 1980). Test results for students in Radio Escuela Santa Maria indicate that they did as well as students in tradional adult schools even if they started with lower scores. Student achievement in the South Korean program has been less substantial (Jamison and Orivel 1981). The use of radio for distance education holds the promise of greater social equity by making education accessible to marginal groups and, thus, reducing urban −rural imbalances. It also appears promising in reducing costs because of the often large number of students per monitor (teacher) and the part-time employment of these monitors. From a financial viewpoint, the normally self-supporting nature of distance education has tended to shift educational costs to poorer populations, but this need not be a necessary feature of the innovation.

Nonformal Education

Radio has been used in nonformal education in several delivery strategies: alone, with monitors, in radio forums, and in radio animation groups. In radio forums, small groups listen to the radio programs, discuss their content, and then move to action. Radio animation groups are similar to the forums except that they stress the participation of community groups in problem definition and self-help action. The forums first emerged in Canada among farmers' groups and have become widespread in India. The animation groups are being tried in Senegal and Niger (Jamison and McAnany 1978).

A rare evaluation of a nonformal education radio program was made of the Basic Village Education (BVE) project in Guatemala. The fundamental characteristics of the innovation were:

- Daily hour-and-a-half radio programs devoted to agriculture;
- Curriculum addressed to agricultural practices; and
- Testing of different radio treatment: some groups just listened to the radio, others had the assistance of a monitor, still others had the assistance of a monitor and an agronomist.

Personal costs included the farmer's time and the purchase of a radio. Social costs were those related to radio program design and planning, administration curriculum content development and preparation, preproduction (preparation for broadcasting, such as training monitors and agronomists), final production (printing and recording materials), transmission (transmitter, diesel generator, and equipment needed by monitors and agronomists, such as vehicles, tape-recorders, and photographic equipment), and reception (farmer's time, radio, and batteries). The analysis of costs showed that the listening hour per farmer could be as low as U.S. $0.12 assuming an audience of 92 000 farm families (Klees and Wells 1978, p. 36). Radio programs with monitors were found to cost seven times more than radio alone, and radio with both monitors and agronomists cost twice as much as radio with monitors only.

The evaluation study of BVE evidence for personal benefits was less clear than for social benefits. Effectiveness at the individual level was measured in terms of point gains in an index of "agricultural practice"; this index had about 30 points. The highest gain reported by the experimental group consisting of a radio, a monitor, and an agronomist, showed a gain of only 2.1 points over the control group. By looking at this gain the researchers were unable to conclude whether the investment was worthwhile (Klees and Wells 1978, p. 46).

Another measure of effectiveness at the individual level was assessed in terms of productivity. To do this, researchers made simulations comparing costs of traditional crop systems, common to the area where the project operated, with costs to produce two improved systems recommended by BVE. This comparison involved the cost of inputs (including family labour and amortized costs of owned capital equipment) and the expected harvest profits. The simulation found the new systems to be 1.5−4.5 times more profitable than the traditional systems. However, a path analysis carried out by the same researchers to detect effects of BVE on actual agricultural productivity measured in terms of the farmer's gross revenue found very small revenue benefits. The researchers concluded that perhaps insufficient time (less than 2 years) had elapsed for the treatment to manifest its effects (Klees and Wells 1978, p. 79), but they also suspected that perhaps the practices were not productive or were incorrectly applied, or that practices were correct but that BVE had not convinced farmers to adopt them (Klees and Wells 1978, p. 81). The sobering conclusion of these researchers was that the farmers needed real access to recommended agricultural inputs to make innovations effective and that issues such as land tenure and distribution were important incentives and disincentives to farmer productivity.

At a social level, benefits of BVE were numerous: the ability to reach large audiences quickly, easily and regularly; the low cost of this access; the ability to reach illiterate groups (although family and community literacy permitted the more effective use of written materials accompanying the radio programs); and the externalities attached to the existence of a BVE radio station that could make it applicable to nonagricultural programs as well.

Use of Educational Television (ETV)

As with radio, television has been used chiefly to reach marginal populations. For reasons that are not totally clear, however, this innovation has been used in developing countries primarily with older children (upper primary grades) and young adults. Characteristics of television as used in educational programs are:

- ETV lessons are short, between 10 and 20 minutes, and each subject is presented in two to four lessons per week;
- Only core subject matters are covered;
- ETV lessons complement the official curriculum conveyed by the classroom teacher;
- Student workbooks and teacher's guides are used to complete lessons; and
- Teachers need retraining.

The use of ETV within formal education programs does not present any additional personal costs, but in cases where ETV is being used to provide high school instruction to rural populations, parents have incurred the costs of building or securing a classroom and supplying the television set and furniture for the new classroom. This is the case of *Telesecundaria* in Mexico where, acting on evidence of community willingness to have a teleschool, the government has provided ETV services. Costs to install ETV include the acquisition of technology (television studio and equipment and television sets and batteries); production, transmission, distribution, and reception of messages; administration; and maintenance. Costs also include those related to curriculum development, because the introduction of ETV, as in the case of radio, generally requires a thorough review and subsequent reformulation of curriculum objectives.

Educational television is much more expensive than radio, but actual costs depend on whether the innovation can utilize an existing network at marginal cost during off-peak hours or needs its own transmitter and network of relay transmitters. Although ETV requires a significant capital investment, reduction in costs per student are expected to appear as the innovation achieves massive coverage. This extended coverage is expected to result in substantially reduced student costs because of decreases in teacher salaries caused either by the need for fewer teachers or by the lower teacher qualification required.

Expectations regarding extensive coverage have not yet been fully realized. The actual cost of installing ETV in the Ivory Coast was almost twice that planned, and 5 years after the project was in effect the cost per pupil was still 30% higher than before implementation (Carnoy 1975, p. 227). On the other hand, a cost analysis of ETV in El Salvador concluded that if the modest number of 30 000 students participated in the program, costs per student would range between U.S.$62 and

U.S.$73 as compared with U.S.$52 for the standard non-ETV program and that if the program reached 130 000 students, costs would be lowered to U.S.$42 and U.S.$49 (UNESCO 1977). The expectation that fewer teachers will be needed under ETV does not seem to materialize in real life. In the experience of a Brazilian ETV project, the pupil–teacher ratio did not change and the ETV teachers did not earn less than their predecessors (Arena et al. 1977). The *Telesecundaria* project reported that estimated cost per student was 25% less than in the regular program (Mayo and Klees 1974). But this cost was calculated by considering the number of teachers, classrooms, and other resources that would be provided, and then weighing these estimates against the maximum student enrolment possible within a particular system and budget (Mayo and Klees 1974, p. 6). An interesting aspect of the *Telesecundaria* project is that when comparing costs by source of funding, the contribution made by the government decreased from 84% under direct (traditional) teaching to 75% whereas the community support (student, family, and parents' group) went from 16 to 24% because of the construction and maintenance of classroom facilities and the cost and maintenance of television (UNESCO 1977). This suggests that a capital-intensive technology may further shift educational costs to disadvantaged populations.

The evidence on the side of benefits is conflicting and often based on projections rather than actual practice. Evaluations of three cohorts of the El Salvador ETV project showed that ETV students gained from 15 to 25% more than non-ETV in general ability tests but about the same in reading (Arnove 1976, p. 126). But an analysis of the same data by Carnoy (1975, p. 234, 237) argued that, based on data from the first 3 years of the project, ETV student gains were recorded only in the seventh grade and not in the two subsequent grades of the project. More critically, Carnoy noted that the gains of seventh graders in reformed ETV classrooms did not show significantly different gains from reformed classrooms without ETV (i.e., those that were also following new curricula) when both were compared with traditional (prereform) classrooms.

Evidence at the student level from the Ivory Coast ETV indicates that grade repetition decreased from a disastrous 28% to a more acceptable 10% and that dropouts were also fewer (Eicher and Orivel 1977). But these results are obscured by the fact that the introduction of ETV in the Ivory Coast coincided with the adoption of automatic promotion of students (Arena et al. 1977). The Ivorian case showed that students in ETV registered better scores in learning French but no difference in math (UNESCO 1982).

Evidence from ETV projects in Brazil and Mexico, both of which deal with poor rural populations, is more positive. In the Brazilian case it was found that students from ETV classrooms were more successful in gaining admission to secondary schools than were students in traditional programs (Arena et al. 1977.) *Telesecundaria* of Mexico found that, although the students were older and came from poorer and less-educated families, they performed better in reading and math than students in conventional programs (Mayo and Klees 1974).

Self-Instructional Materials

In the last 8 years, several developing countries have been experimenting with self-instructional materials for use by either students or teachers. The aim of this innovation is to reduce educational costs by making the learning process less dependent on the teacher or by improving the teacher's competence and, thus, producing greater student learning and retention.

Self-instructional modules were first tried in the Philippines and Indonesia. Later the innovation was expanded to Malaysia and Jamaica, and more recently to Liberia and Bangladesh. Characteristics of this innovation are:

- Use of individual modules for students able to read;
- Presentation of subject matter in small increments of learning (modules);
- Flexible learning rates and flexible exit and reentry into subject levels;
- Use of upper-grade students as tutors for the lower grades;
- Use of teachers in a facilitating role;
- Community participation in redesigning school facilities and supplying teacher aides;
- Use of learning centres for independent reading; and
- Some limited use of radio and tapes to complement modules.

The existing cases of projects using self-instructional material show that it is a complex innovation that has tended to be accomplished by an extensive curriculum revision before the production of materials and by intensive teacher training to shift their role from directive to guiding.

Costs involved in introducing the innovation include curriculum revision, development and field testing of modules, preservice for teachers and school principals, salaries for instructional supervisors and itinerant teachers, modifications of

school facilities, printing and distribution of modules, inputs at learning sites (administration, storage, and maintenance), and community participation. Cost analyses have been made of the Philippines experiment. A weak cost analysis based on the examination of salaries and modules (but excluding costs associated with module distribution and maintenance) concluded that the Philippine's Project Impact produced a saving of about 15% in operating costs. The same analysis predicted that "implemented on a national scale," the innovation would reduce the number of teachers needed in the educational system by a factor of four (Sanger 1977). Another study of Impact estimated that, depending on the number of students per school and the number of schools using the technology, annual costs per student would be 16–61% lower than traditional schooling (Tullao 1978). A third cost study of Impact, focusing on different schools and assuming no need for new module development, found the self-instructional schools to yield costs per student 46% lower than the traditional school (Innotech 1978). The Tullao study reported that the instructional material costs of Impact were 50% higher than in regular schools, but that costs per pupil decreased as the pupil–teacher ratio more than doubled from 30 or 40:1 to 100:1 (Tullao 1978, p. 4). In the case of Indonesia, there are expectations that the introduction of self-instructional materials will decrease student costs of instruction by 30–40% (Comptroller General of the United States 1980). In this country also, self-instructional materials are being used to reach dropout populations. Cost–benefits of providing education to these groups will be difficult to estimate because the costs of reaching dropouts are not comparable to those incurred in servicing regular students. Furthermore, costs for providing education for dropouts can result only in an additional expense because the cost of reaching them before was zero (Klees 1981, p. 33).

It appears that self-instructional materials are a technology likely to manifest significant variations in cost from site to site. These differences are all module-related and may emerge according to the quality, quantity, length of modules and their replacement rate, the ratio of students to modules, and the need for textbooks and other materials to supplement them.

Benefits at the individual level appear moderate. When student achievement was measured in terms of scores in curriculum-based tests, Impact students tended to perform as well as those in traditional schools rather than significantly better. Thus, in 39 out of 54 cases (based on class mean scores per subject matter) Impact students performed as well as their counterparts in traditional schools (Flores 1981, pp. 70–71). A similar result was found in the Indonesian project where students using modules and peer tutors did as well as those in traditional classes (Mudjiman 1981, p. 85). Furthermore, when personal benefits were measured in terms of student transition to high school and employment, Impact produced a greater proportion of students who proceeded to high school (83% compared to 71%) and a lower population of unemployed youths (8% compared to 23%) (Flores 1981, p. 73).

But results from comparisons between experimental and regular classrooms cannot always be considered as measures of the outcomes due to different treatments. There is evidence that in some cases, self-instructional materials have been used as a supplement to rather than a replacement of classroom instruction (Tan, undated). In those instances, students in the experiment would tend to do better because they are receiving more instruction. Social benefits associated with the reduction of the teaching force have not materialized. In the implementation of the innovation in Jamaica, an explicit clause had to be added to promise that the average student–teacher ratio would not increase.

It would appear that technologies such as radio and television have a potential for reducing unit costs of education. However, because of the large capital investment and number of students required to make student costs competitive, television has not yet been able to reach its potential. Radio, on the other hand, appears to be more economical and effective in producing learning gains in students. It is also apparent that radio, and particularly its modality of distance education, can be used effectively to provide education to otherwise unattended rural populations. Radio's greatest potential for educational efficiency is probably with older students, whose learning can be more independent, with only occasional need for teachers (Jamison and McAnany 1978). Self-instructional technologies have demonstrated strong cost-saving features but there is a reluctance to expand their application, probably because the notion of self-instruction, especially regarding young children, still meets social resistance.

There are several negative aspects associated with the introduction of these technologies. First, it has been noted that their individualistic orientation is based on the assumption that learning is only an individual process and consequently they tend to reinforce political systems that discourage collective action. Second, the successful implementation of these technologies calls for capital-intensive, rather than labour-intensive, educational systems.

It is not clear what will happen with teachers, i.e., whether their positions will become preempted by the new technologies. Aware of the implicit threat in these innovations, teachers have opposed (e.g., Jamaica) and will oppose objectives to increase student–teacher ratios. Finally, evidence from the studies in El Salvador, Mexico, and the Dominican Republic indicate that, even when technology offers a "second chance" education, students in these programs develop aspirations similar to those of students in regular schools (UNESCO 1982). Because the aspirations of poor, rural students stand only a slight chance of fulfillment, it is possible that their aspirations will turn into frustration or that rural exodus will continue to exist.

Innovations Within Nonformal Education

In developing countries, education must address the needs of large sectors of young persons and older adults residing in rural or marginal urban areas. Because the high costs of formal education nearly always prevent it from reaching these individuals, educational planners constantly seek to bring them into activities that provide them with the knowledge to improve their economic productivity or enhance their organizational skills. Hence, the concern with nonformal education innovations is most relevant.

An assessment of this type of innovation, however, defies the common cost–benefit or cost-effectiveness logic. These innovations often mobilize individual and community resources that were previously unutilized or underutilized. To speak then of these inputs as bearing foregone costs is not appropriate. Furthermore, many benefits are not readily quantifiable, nor is it the purpose of program implementors and beneficiaries to quantify them. Finally, these benefits tend to have a long gestation period, and the time at which to measure them cannot be defined a priori. Thus, although the nonformal education innovations are reviewed below in terms of the costs and benefits associated with them, it should be clear that this type of analysis is by nature amorphous and imprecise.

Combining Education with Productive Activities

A number of nonformal educational projects in the 1970s undertook a strategy to meet recurrent costs by combining productive work (such as carpentry, masonry, and raising crops and animals) with educational activities. The advantages of this approach are both financial and educational, because the opportunity to learn and do is provided within one program. Additionally, a certain level of autonomy from outside control is afforded those projects that can manage to support themselves. Typically, projects that exhibit this innovation have the following features:

- They have often begun as a result of locally inspired initiative and are [illegible]al control;
- Their training or teaching components are related directly to income-generating activities;
- They are aimed at unemployed and uneducated young adults;
- Their curricula vary according to the needs of their students and the conditions of their respective locales; and
- Especially in incipient stages, the extent of both capital costs (equipment and sometimes land) and outside technical assistance may have been high.

Foremost among the projects featuring this innovation are the brigades of Botswana (Martin 1970; Sheffield and Diejomaoh 1971, pp. 55–66; Lingappa 1977, pp. 11–12; van Rensburg 1978). On the costs side of the project, personal cash outlays from students are low. Opportunity costs to students are also low, because, in an environment of high unemployment with a high percentage of out-of-school youth, it is doubtful that students not enrolled would otherwise engage in farming or other self-employment activities (van Rensburg 1978, pp. 39–59). Social costs are higher, particularly in the stages of early development and with respect to those farmers' brigades where capital expenditure and foreign technical assistance are extensive (Sheffield and Diejomaoh 1971, pp. 59–61), but, for the most part, recurrent costs can be met by productive activities. Costs to the communities involved are sizable particularly in those farmers' brigades where contributions of land and livestock are involved in exchange for the services of trainees.

On the benefits side, personal returns on investments of time and labour by the students begin with their preparedness to enter the labour market. It must be emphasized that this benefit is dependent on jobs being available in the market economy, which is limited in its capacity to absorb trainees from construction, mechanical, and craft curricula (Martin 1970, pp. 67–69). The training itself, however, is designed to include more than trade-related skills. There are also components in health, English, history, development studies, and other matters of social interest (van Rensburg 1978, pp. 49-57) that are of personal benefit to enrollees.

From a social benefits standpoint, brigades

appear to be an effective training ground for filling jobs in trade-related fields. There are questions, however, about competition for the limited construction opportunities in the open market, with brigades often being able to underbid private concerns (Martin 1970, pp. 56–61). The effect on the local economy is difficult to surmise, partly because brigades are not automatically awarded contracts on the basis of submitting lowest bids (Martin 1970, p. 58).

Benefits accruing to specific communities have not been quantified often, but van Rensburg (1978, p. 63–67) offers a good description of the Boiteko brigade's community involvement. The involvement resulted in a series of infrastructure development activities (roads, waterworks, etc.) many of which are potentially, if not actually, being replicated by other brigades in their respective communities.

Information on this innovation points to specific financial, quality control, and relationship problems with government and specific communities. But, as a whole, the brigades appear to offer viable ways to reduce the costs of trade training, to generate income, and to offer needed services, both economic and social, particularly to their respective communities. The nonformality of the educational component is characterized by its attempt to meet local needs and its explicit intent to be self-supporting. Generally, however, before brigades are effective in stimulating self-employment activities, particularly farming, it appears that more detailed questions of development ideology, policy, and strategy will have to be addressed at the national level (van Rensburg 1978, pp. 73-74).

Technical Training for Local Community Needs

Various schemes have been introduced at the local level to use nonformal methodologies for agricultural and trade training purposes in response to needs identified in local communities. Local communities may not always have complete control of the kinds of training activities and their implementation. Nonetheless, the feature common to all is the intent to serve the local community by training particularly the youth, although older individuals are increasingly involved, for employment locally. The most prominent features of this innovation are:

- Organization sponsorship is provided, at least initially, from the national level;
- The involvement of the local community increases to assume full sponsorship;
- Local management increases control of the training programs offered;
- Agricultural and technical training are combined in the curricula;
- Practical training is not combined with income-generating activities;
- Training is directed toward meeting the needs of semiskilled occupations, as defined by local communities; and
- Training is geared toward employment.

The Kenyan village polytechnics (Kipkorir 1975, pp. 189-197), among others, exhibit these features to a great extent, although other programs in Africa have several of the above features as well (Muro 1976).

Costs at the personal level include student fees, but these are relatively low. By definition, opportunity costs are also low, because the clientele is unemployed and out of school. Costs to the government and society as a whole are minimal considering that alternatives (i.e., formal technical schooling and apprenticeship schemes sponsored by private concerns) are not yet available. Kipkorir (1975, pp. 193–195) notes that operating costs are low, but requirements for outside assistance in terms of technical advice and financing continue. Community outlays are also realtively low, although donated labour and participation in planning are expected (Kipkorir 1975, p. 190).

Benefits accruing to individual students include technical training to a semiskilled level of competence. However, larger economic issues are inevitably brought to bear on students who complete training and are prepared to work but find themselves with "second class" status (Kipkorir 1975, p. 196). Society benefits from the availability of more qualified, semiskilled young people, although questions can also be asked about subsequent tendencies to migrate to urban centres. There is, however, solid evidence that the rural community focus of Kenyan village polytechnics has produced positive results. On-the-job training has a village project focus (Kipkorir 1975, p. 192), which has frequently created jobs where none existed before.

Although some of the points above relate to quantitative returns, others have a direct bearing on the quality of rural life as affected by the polytechnics. With village committees having substantial input into their curriculum and management, polytechnics remain responsive to community needs, contribute toward reversing the outflow of cash to towns and cities, and provide the youth with a means to refocus their futures toward the communities in which they grew up. Although there is some duplication of the training in the formal system, this problem is tempered by the "second chance" character of the nonformal

school. In this respect, careful attention will need to be paid to how polytechnics indirectly contribute toward further stratification of Kenyan society (Sheffield and Diejomaoh 1971, pp. 51–65).

Developing Indigenous Organizations

The development of indigenous organizations involves nonformal educational innovations that have concentrated on training for organizational developments, i.e., skills related to leadership, coordination, needs assessment, and planning. Training projects for the People's Education Association (PEA) of Ghana (Kinsey and Bing 1978), small farmers in western India (Tandon and Brown 1981, pp. 172–189), rural facilitators in Ecuador (Hoxeng 1973, pp. 108–131), and empowerment (i.e., the fostering of collective action) in a range of contexts (Kindervatter 1979) all demonstrate development of skills, attitudes, and organizations concerned with the achievement of various social goals on a local level.

Features common to the innovation of training for the development of indigenous organizations include the following:

- Initially, a ministry or other government body has cooperated in the identification of local groups or organizations to improve their staff capacity in the building of teams, instructional abilities, interpersonal skills, organization consulting skills, and in other related needs, analysis, goal setting, project implementation, and evaluation skills;
- Generally, the level of initial outside technical consulting input may have been high;
- Organizations to be reached locally may have had a combination of village-based and district- or regional-level constituencies;
- Nonformal methodologies employed offer a combination of local and imported techniques such as games, simulations, popular theatre, and other approaches with foundations in the behavioural sciences; and
- The overall intention of the educational input has been to build local institutional capacity to carry on and expand the development of organizations and project facilitation.

Although initial inputs of outside technical assistance have been at high levels and, therefore, costly, at least to donor agencies, a variety of methods to develop the instructional and organizational capabilities of local voluntary and other organizations was introduced in the 70s. It can be argued, at least partly because of high inputs of foreign technical experts, that cost reductions cannot be demonstrated in the early stages of project development. Yet, the pilot nature of the projects has usually called for the costly development of techniques, materials, and personal resources that could be used to replicate and expand projects elsewhere. There is, moreover, increasing evidence that initially expensive inputs of foreign technical assistance later proved to be less necessary as local organizations assumed greater responsibilities.

On the other hand, there appear to have been limitations to the extent to which local initiative, control, and development efforts alone could ameliorate the effects of problems that are national and international in scope. In this respect, Paulston's (1979, pp. 4–5) plaint about the isolated nature of innovations is important.

Although the innovations referred to above have not been sufficiently evaluated, beneficial results have been observed. The facilitator model, innovative procedures for developing materials, new applications of group-centred work, the concept of games and their utility to literacy training and consciousness-raising, each applied in various combinations with other technologies (e.g., radio), were tested in a number of projects and produced positive, although admittedly not completely definitive, results (CIE 1976). One outcome of particular relevance to community-level impact is the growing evidence that innovations of this kind, when introduced in the context of governmental support for indigenous organizations, produce positive results (Krueger and Moulton 1981, pp. 10–12, 28). Before specific cost-reducing components of these programs can be isolated, however, more thorough evaluations, employing at least some form of the qualitative/quantitative assessment instruments, have to be made. Whether, for example, identifying, training, and fielding facilitators according to this model result in decreased outlays by the bureaucracy requires more comprehensive study. It is clear, however, that marginal populations were reached, communities undertook development projects, people did learn to read and write, and organizations were either formed or improved.

Creating Entrepreneurial Training for Rural Development

Although several nonformal education development projects have specific components directed toward business and managerial skills, few have focused their main training thrust toward skills required for the establishment of enterprises. Those that did employed an innovation based on McClelland's theory of need achievement, which seeks to capitalize on the motivation of achievement-oriented individuals. Two projects featuring this

innovation appear to have generated several positive results: the Gujarat Farmers Training Project (India) and the Learning Fund Programme (Indonesia). Target groups considered for these projects are unemployed or underemployed farmers in villages. Various government programs, the Gramsevaks in India (Shortlidge 1974) and PENMAS in Indonesia (Iskandar et al., undated) for instance, have sought to provide such training. One aim of these projects has been to involve lower-level government officials in programs to inspire entrepreneurial self-employment activities.

Features of the innovation that have contributed tangible benefits include the following:

- The involvement of poor farmers has been achieved through local government field office personnel;
- Training activities in farm and service marketing skills are designed for the specific needs and potentials of local farmers;
- The participation of farmers in experimental learning activities is expected and planned;
- Individual plans, formalized through contracts between trainer and trainee, are made during and after training to carry out entrepreneurial schemes;
- Trainers continue follow-up activities in the villages;
- The community is the focus of development activities; and
- There is an expectation that results of training will be demonstrated by increased income.

The Indonesia program has the added feature of a revolving loan fund to help stimulate new or expanded entrepreneurial activities following or in conjunction with training (Iskandar et al., undated, p. 6).

Considering that the bureaucratic apparatus for delivering services to the villages already exists, additional social costs to government at large are minimal; the revolving funds for learning groups in Indonesia (about U.S.$250 each) are one added cost; outside technical training expertise in the Gujarat project are another (Heredero 1979, pp. 7–8). Also, personal costs to individuals are minimal considering the seasonality of work and the previous underemployed status of poor farmers. Risks, such as those derived from engaging in credit practices or agreeing to produce a certain amount of goods, are involved, however, in undertaking or expanding business activity. Returns may not equal investments. Costs to a community involve commitments of energy and facilities to carry out the program. Data are not available to determine these costs, although elaborate new capital equipment or structures are not involved.

Benefits are tangible. Returns to training investment are more directly measurable with respect to entrepreneurial activities because the principal objective is to increase income by making realistic plans and putting them into action. With the learning fund available, additional incentive to follow through is provided. The reports by Iskandar and Heredero indicate success in increasing personal returns. DeWilde's (1975, pp. 434–485) report mentions that follow-up support in the Indian case, although provided on a small scale, was not sufficiently coordinated with other extension activities. Trainees were, therefore, not included in mainstream support mechanisms (DeWilde 1975, pp. 482–484). Although results among individuals were initially promising, their diffusion into the larger community was limited. Incomes after training have been shown to differ noticeably (Heredero 1979, pp. 119–174). Direct benefits to the communities as entities are left for conjecture at this point. Presumably returns to the communities will accrue as more villagers participate in the benefits of new productive activities. Both Heredero (1979, pp. 115–117) and Iskandar et al. (undated, pp. 5–9) point to the expansion of group activities as a result of training experience. Whether or not the activities will develop into those of a community service nature is still unknown.

Fostering Values for Cultural and Personal Development

It is unusual in the short history of nonformal education to see a national effort for developing the community and the individual in the hands of what is essentially a private organization. This is the case of the Sarvodaya Shramadana Movement in Sri Lanka, which seeks to organize cooperative rural work projects through self-help and is based on the development of strong moral values. The Movement is also one instance of the application of nonformal educational methodologies to rural areas through an organization that is independently managed by committee, has a curriculum focused on both the individual and the community, has a basis in traditional religious philosophy and values, and has developed to a large extent on its own resources and initiative (The Marga Institute 1975, pp. 285–289). The Movement's overall impetus is to achieve social development through the education of the individual (Ariyaratne 1979, p. 137). This innovation, then, is unique in the sense that it has developed as a countervailing, conscience-provoking force in the face of assumptions about development commonly found at national planning levels. Basic characteristics of this innovation are its:

- Philosophical/religious basis in traditional Sri Lankan society;
- Independent private basis, although officially sanctioned by the government;
- Curriculum focus on rural development and selection of trainee/instructors;
- Centralized, live-in, permanent training facilities in camps;
- Curriculum of religious values combined with occupational skills, including camp projects with many labour-intensive tasks; and
- Variations in curriculum to accommodate different clientele.

Costs of the program are those incurred as capital expenditures to set up institute branches and as recurrent expenditures for staff, materials, and students. Up to now, there appears to be a continuing need for outside assistance, especially money, although moves toward more village-based, self-reliant activities are contemplated (Ratnapala 1980, p. 499). Personal costs for attendance do not involve tuition. Some Sarvodaya activities generate their own income. It is difficult to surmise that opportunity costs to individuals are significant, because most who join the Movement cannot apply their time to more productive activities elsewhere. Costs to communities, however, are noticeable. Villagers donate land, labour, supplies, and nominate their own people to become instructors in the Movement (Ratnapala 1980, pp. 488–498). But it is the village that is targeted to receive the benefits from projects begun by the Movement.

Personal benefits appear to have accrued more to the members and workers of the Movement than to the community as a whole. From a purely economic perspective, Sarvodaya's impact has been minimal (Ratnapala 1980, pp. 519–520). From a national perspective, it is difficult to perceive a significant progress away from poverty, or to sense a positive impact on the problem of the unemployed and out-of-school youth. From a community standpoint, however, there have been many instances where tangible progress toward social betterment has been made. These instances relate directly to Sarvodaya's input into the lives of often the poorest villagers (Ratnapala 1980, pp. 500–517).

That the Movement has influenced self-perceptions, attitudes, and behaviours of thousands of poor people is attributed to the deep-seated spiritual values espoused by its leader, A.T. Ariyaratne. The uplifting and awakening philosophy is personal, but achieved only in cooperative endeavours at the community level. There is, thus, a continuous interplay between the self and the community that has produced remarkable results in terms of people's commitments to bring about change. For the Movement to live up to its national aspirations, however, more responsively developed relationships with villages will have to be implemented, for there appears to be a dissonance between the villages' tendency toward Westernization and the Movement's traditional Buddhist philosophy.

As an innovation in nonformal education, Sarvodaya exhibits the essential qualities of a domestically inspired education for promoting development. It has reached levels of success unparalleled by any voluntary movement with a philosophical/religious base and independent of government sponsorship. Its message has attracted contributions of labour, funds, and materials that enable the Movement to continue its growth. To conclude simply that specific elements of the innovation, such as teacher time, institutional support, or materials are examples of cost reductions in comparison with other projects (although there is some basis for this contention in Ratnapala 1980, p. 498) is to miss the point of Sarvodaya's achievements.

Integrated Development in Socialist Contexts

The opportunity to introduce a variety of innovations is offered in revolutionary situations. In Tanzania, the foremost examples of nonformal innovations in education can be seen in *ujamaa* (i.e., family or cooperative living) villages, where an attempt is being made to revitalize the social and productive potential of rural areas (Gillette 1977, pp. 73–76). Recent indicators, however, point to a national decline in emphasis on *ujamaa* and an emergent focus on productivity (Fortmann 1980, p. 78). Other nonformal innovations have been implemented in Cuba with the intent to reintegrate the role of education with society and productive work. The main characteristics that distinguish this innovation from other efforts to stimulate productive activities are:

- More centralized decision-making procedures to determine the overall goals, content, clientele, and locations of training;
- Educational components directed specifically to the overall national level of political/socialist consciousness;
- Development of a comprehensive out-of-school curriculum that combines specific relevent skill building with other elements of personal social development;
- The provision of concrete incentives for individuals to work in rural areas (Carnoy and Werthein 1979, pp. 101–106);
- Ancillary project-oriented activities to improve

the quality of village life; and

- Emergent conflicts between community needs to participate and persistent bureaucratic inclinations to centralize (Hall and Moulton 1977, pp. 18–20; Fortmann 1980).

Two projects highlight these characteristics: Cooperative Education in Tanzania and Schools in the Countryside in Cuba. It must first be recognized that one distinct purpose in setting up cooperatives is education. Beyond productivity and other incentives for introducing novel organizational structures to induce production, cooperatives provide their members with opportunities to experience what it takes to run a venture in production. Given this perspective, the schools in the countryside and the cooperative movement approach common problems. Each seeks to educate a specific group of people about the necessity to apply collective patterns of organization to increase productivity in rural areas. In this sense, their respective nonformal innovative features are designed to overcome vestiges of the dichotomies characteristic of purely academic schooling.

Social costs in each case are significantly high in terms of initial capital expenditures. Leiner (1975, pp. 93–94), estimating costs per school in Cuba, pointed out, however, that productive activities more than offset direct costs incurred. Although expenditures for the operation of Tanzania's Cooperative College and Education Center were known, Grabe (1975, pp. 589–616) had difficulty estimating what the costs or benefits were for those cooperative staff members who actually attended educational activities. Costs to the communities involved were those personal investments necessary to undertake any collective work project, including membership fees, work committed, and other tangible community resources. The risks of accepting innovations in agriculture also have to be counted. Unfortunately, available data are insufficient to support or deny the cost-reducing merits of educational activities undertaken by both integrated approaches to development.

Benefits are chiefly social in nature and community-wide in scale. In socialist systems, by definition, the assumptions on which conventional cost–benefit analyses are conducted are different. Individual achievement is not stressed. This is not to say that discrepancies between personal and collective incentives do not exist, as Fortmann's (1980) study explores in some detail, but that the innovation of combining political and socialist education with productive, especially agricultural, activities has produced results that have tangible effects on the style and quality of life at the rural community level, among them being the development of a new community consciousness, the practice of doing and studying agricultural production, the direct participation in development projects, the formation of more egalitarian patterns of relationships, and the concrete steps taken to reinvigorate the productive capacities of rural areas.

Innovations Improving the School's Internal Efficiency

Besides innovations that are added on to the formal educational system or that are created in the area of nonformal education, there are a number of initiatives that can be taken within the existing inputs of the educational system. These strategies aim at better quality levels of education and a reduction of wastage generated by dropout and repetition. These involve essentially a reshuffling of resources to emphasize the most critical ones and to eliminate those that do not contribute significantly to positive schooling outcomes.

According to Carroll (1963), the efficiency of existing educational systems may be increased through four factors affecting educational outputs: improving early training to reduce the time needed to learn subsequent educational tasks; increasing the motivation of the student to expand the time the individual is willing to spend learning a given task (ideally to match the time needed for learning it); improving learning opportunities by increasing the time allowed to learn the task (ideally to match the time the student is willing to be effectively involved in the process of learning), and improving the quality of instruction to keep "time needed" to its minimum level and motivation at its maximum level. Efficiency may also be improved by reducing unnecessary resources that do not have a strong positive effect on the quality of educational output. This approach will be commented on as a fifth factor.

Certain innovations emphasize radical changes in the educational system. For example, motivation of truant children may require a nonformal approach (*Bosconia* in Colombia or *Mi Casa* in Chile). The use of community volunteers trained on the job also may be impossible in the formal system. For the sake of simplicity, each of the experiences described below will be analyzed with respect to one of the above factors. Those experiences affected by two or more factors will receive additional comments.

Reducing the Time Needed to Learn

In the Latin American and Caribbean countries

repetition is especially high in the first grade of the formal system. Innovations described in this section, therefore, attempt to reduce this problem. There is clear evidence that both early stimulation and previous learning tend to be positively associated with the capability to master new tasks with greater facility. But both are negatively associated with socioeconomic levels. Therefore, given that the expansion of the formal system into rural and marginal urban areas tends to reach children of increasingly lower socioeconomic condition, this expansion would tend to produce lower educational outputs even if the quality of the instruction and other elements remain constant. This assumption explains why innovations designed to select students in terms of their academic ability alone (tracking for example) are not discussed in this paper; they are considered too discriminatory against the disadvantaged groups of society.

Early Stimulation

It has been shown that Colombian children of marginal areas perform far below the average population, but early stimulation programs combined with suitable nutrition have raised their achievement to the level of American standards. A program developed in Chile to train parents to provide their children with a more systematic stimulation has also been successful (Montenegro et al. 1979).

Preschool Training Provided by Parents

Training parents to improve the readiness of their children for entering elementary schools has been extremely successful (Filp et al. 1981). Given that repetition in first grade averages 50% in Latin America, this type of intervention may have a significant impact on the overall efficiency of the system.

Expansion of Kindergarten Enrolment

A research project carried out in Argentina, Bolivia, Colombia, and Chile suggests that children who go through preschool training perform much better in first grade than those that do not have such an opportunity (CPEIP 1981). These results are consistent with those detected in the Ypsilanti project (Weinkart 1977). These studies further suggest that those schools that have a kindergarten as the starting course have lower levels of repetition than the average school, even when the comparison is carried out exclusively in rural schools.

In summary, because in many developing countries the main source of inefficiency seems to be located in the first grade, the above three innovations have considerable potential for the reduction of the problem. Success in the first grade should also have positive effects in later grades by reducing the early negative results. These innovations may generate a substantial cost-effective improvement in the whole system if applied extensively.

Expanding the Time the Student is Willing to Spend Learning

Some countries suffer very low attendance rates caused largely by a lack of interest on the part of the student. It has been reported that only 65% of the enrolled Jamaican school population attends with a fair degree of regularity. Motivations and aspirations also affect the use of the time in class. These values are related to the family socioeconomic status, but teacher expectations as well as self-esteem seem to play important roles. Preventive and remedial innovations have been attempted with varying degrees of success. The first innovation described below is aimed at keeping students together with their peers and friends, assuming this to be an efficient strategy to forestall frustration and lack of interest. The second experience deals with increasing self-esteem.

Automatic Promotion

In several Caribbean countries children are promoted by age; only at the entrance to the secondary level is there a selection by achievement. In some Latin American countries all students are also granted automatic promotion to the second or even up to the fourth grade. For example, Venezuela in 1971 "eliminated" repetition in the first grade, but in fact many first-grade students were attending the same grade in the following year. Costa Rica and Chile granted automatic promotion to students that attended more than a certain percentage of the annual total of school days, thus, increasing the time allowed to learn. However, the short-term impact of this strategy does not seem to be great. In other countries where promotion is based on age (like the aforementioned Caribbean countries), a large proportion of the students may not really profit from the promotion. For example, 53% of graduates from primary school in Jamaica are considered to be illiterate.

Recovering Self-Esteem

Restructuring the curriculum to pay more attention to those areas in which the repeater performs well has allowed the "school for success" program to rebuild confidence as an initial step toward academic success. Another program, of remedial workshops with the participation of community volunteers in role playing, games, and dramas

combined with drills, has also been extremely successful. More than 80% of the students with low academic achievement have been promoted in each of its 3 years of operation. Both experiences have been carried out under conditions that may be replicated on a large scale.

Selection of a few good students to help in grading tests tends to reduce the time the teacher spends in that work, and involving the students in the grading process increases the time they spend on their tasks. This is a technique that should be further explored before using it on a large scale.

Increasing the Time Allowed to Learn

In developed countries the school offers nearly 200 school days, but in urban areas of developing countries it may average 150, and closer to 100 in the rural areas. Given that many rural teachers live in nearby cities, and seldom have their own means of transportation, they travel to school on Monday and work from Tuesday through Thursday, returning to the city on Friday. Sometimes the teacher is asked to attend meetings with supervisors in their offices (supervisors do not have cars or travel expenses, therefore seldom visit the schools) or must leave to cash the monthly or weekly paycheck. Thus, the rural teacher's 30 weeks of 3 working days each may average less than 90 school days in a year. Absenteeism of students also has its own dynamics. Some absenteeism may be due to factors that are not related to motivation or interest and should also be considered. For example, during "banana days," when the ships are expected to collect bananas, there is always high absenteeism. Incomplete schools, those that do not cover all primary grades, also represent a constraint to the time the student can attend school. The magnitude of these problems and research results that show their impact on achievement may explain the many strategies that have attempted to increase the time the student is allowed to learn.

Use of Local Committees to Pay Teachers

Mexico has successfully implemented a project that includes teachers selected from among members of local communities trained on the job and paid through local "*patronatos*" (local committees) that will ensure that the teacher is present for the entire weekly schedule. The project also provides a set of textbooks and instructions for the teacher to use those materials (CNFE 1980).

Improvement of Local Supervision

Paraguay, with resources from an International Bank for Reconstruction and Development (IBRD) loan has provided light motorcycles to supervisors who were made responsible for theirmaintenance. Given that gas expenditure for motorcycles is very low, field supervision became more intensive than in the past. More than 95% of the current supervisory budget is devoted to salaries, but limited funds are provided for supervision expenses. Further evaluation of he Paraguay experience should be carried out to design other projects in this area.

Adjustments of Weekly or Annual School Schedules

Uruguay changed its daily schedule in the rural area so that classes begin now at 10:00 hours instead of 07:00 hours to allow children to cooperate in farm activities before attending school. The change has been very successful and is now in operation throughout the country (Fernández 1980). For similar reasons, in many countries the second shift in rural schools is devoted to older students. In the southern part of Argentina, longer vacations are given in winter to avoid the problems of flooded dirt roads. In Cuba, the school year vacation fits the sugarcane harvest and the same happens in the coffee production zone of Costa Rica. Bolivia has successfully expermented with a few itinerant teachers to follow families that migrate in response to seasonal harvesting demands. In spite of all these successful examples, there are many countries with rigid school schedules that force high levels of absenteeism and teachers' unions that favour a longer school year.

Remedial Coaching for Slow Learners

There are many students of normal intelligence who could reach acceptable achievement levels if provided with a longer period of teaching. Coaching experiments of 2 and 3 weeks duration have been successfully attempted in Chile (along with several other measures), cutting repetition by half. Following the normal period of examinations, teachers concentrate on the small group that encountered problems and work with them for 2 or 3 additional weeks, giving them a new exam that is usually passed by half of the group.

Flexible Curriculum for Slow Learners

Math and writing are two subjects that "accumulate" skills in primary education (all other subjects begin each year as new skills). If slow learners are allowed to concentrate on those two subjects, they may keep pace withthe grade level and, in certain cases, take the full curriculum later. Help from community volunteers in the drilling of certain skills has proven to be a valuable aid (Castillo 1978).

Offering Complete Primary Education Through Multigrade Classes

An additional way to increase the time allowed to learn is to train rural teachers, serving populations too disperse to have enough students in each grade, to work simultaneously with several grades. There are many successful experiences with this approach in Latin America, although very little has been written about it. One condition for success, however, seems to be that each student has access to at least one textbook. Multigrade teaching forces the teacher to individualize instruction (something that is difficult to do in graded classes) and to fulfill the role of tutor rather than lecturer. In addition, multigrade classes help to increase the size of the school, and several research studies suggest that the efficiency of the school increases until a certain size is reached (about 200 students at the elementary level).

Several other strategies have been attempted but must be evaluated. One interesting alternative, for example, involves experiences with homework that provides the student with a means to check the results to receive suitable reinforcements. Also in need of further study are the effects of changes in teachers' salaries (increases or reductions) on their willingness to make extra efforts in solving their students' problems. Because a reduction of repetition is associated with a reduction of dropouts, there is a double benefit: the assistance provided to allow repetitions allows the student more time (in terms of years) to learn.

Improving the Quality of Instruction

Efforts to improve the quality of instruction include many experiments and few evaluations. Little is known of how instruction is really provided, except in carefully controlled situations. There are many interesting experiences of individualized instruction but mainly at the university level. What is known, however, is that more expository lectures are used in training teachers than in the training offered in other university careers. Future teachers are, therefore, passively instructed in the theory of active teaching. Later, they use the same models by which they were trained, i.e., transmission rather than discovery. In addition, entrance examinations to the next level usually preclude a more flexible curriculum. This is especially valid with respect to the effect of university entrance exams on secondary education, but also includes the effect of the "11 plus" in the Caribbean. In spite of the scarcity of successful strategies under this category, four experiences have been singled out.

Measurement of Academic Achievement

Several developing countries are measuring the academic achievement at the end of high school, and national averages are available to gauge the performance of individual schools. In some cases, the exercise has been replicated at the elementary level. These measurements may provide a sort of automatic mechanism to monitor the quality of instruction (as defined by the examination). In certain cases, computation of averages by regions, schools, or trades may help to detect pockets of low quality. Their detection facilitates the improvement of the efficiency of the whole system. In addition these data may be used to identify the main factors related to low achievement and eventually to reduce their impact. However, only a fraction of the data has so far been transformed into directly usable information.

Individualized Instruction

Several experiences of applying the "Keller Plan" approach to university instruction have proved to be successful (Chadwick 1969). Efforts to use formative evaluation schemes also have shown promising results at the elementary level. It is possible to envisage new experiences in this field given the diffusion of Bloom's concepts. In the long run, training of teachers in a less passive manner (providing future teachers with real models of individualized instruction) may be the best way to improve the quality of instruction, but the approach still requires prolonged experimentation with longitudinal studies of teachers and their work.

Provision of Textbooks to Those who Cannot Afford Them

Several research results suggest that the availability of books appears to be the single most consistently positive factor in predicting school achievement, even more than teacher training (Heyneman et al. 1978). More controlled experiments are required but, at least in one of the first attempts to provide textbooks, repetition rates have been substantially reduced, although this was one of the several policies against repetition that the program implemented simultaneously. More research is necessary also with respect to the effects of the types of books that may be provided.

Training School Principals to Become "Generators"

A good principal has a multiplier effect on the teaching staff. Training seminars and workshops for principals and their assistants, coupled with checklists of techniques to motivate teachers, have proved capable of transforming school quality. It is necessary, however, to prepare two or three leaders

in each school to work as "generator groups." Both theoretical and practical work should be conducted and, if possible, these individuals should spend brief periods in schools shown to hold as preeminent the success of all children (UNESCO 1981, pp. 37–41).

Providing Teachers with Better Training

There is substantial evidence showing that teachers do make an impact on learning. A review of 32 valid empirical studies on the relationship between teacher training variables (measured in terms of years of training and type of qualification) and student learning found a positive association (Husén et al. 1978). There is presently little knowledge about the effects of diverse teaching styles and the relative cost-effectiveness of various teacher training modalities. Nevertheless, it appears that the use of distance education and self-instructional materials for teachers may be a very economical way to train teachers.

Reducing Unnecessary Elements

Educational systems are the largest industry in many countries. They are so large that their tremendous inertia makes it very difficult to introduce changes. They possess many resources that may have been useful at one time but are no longer necessary. Efficiency, therefore, may be improved by the simple elimination of redundant elements. Three strategies to this effect are commented on below.

Reducing Vocational Education

In certain stages of development some vocational training is required to prepare bookkeepers, secretaries, printers, carpenters, plumbers, masons, mechanics, and electricians. Later, most of the training is provided on the job or requires a higher level of postsecondary training. But secondary vocational schools, which may cost double what their academic counterparts cost to operate, continue to serve people who in fact will go on to university careers. Peru and Venezuela have recently tried to reduce vocational training by upgrading some of these schools to the postsecondary level or by transforming them into academic *liceos*. Considerable resources have been saved and the outputs seem to be better than before. During the 1965–70 reform, Chile also reduced the secondary level from 6 to 4 years, and expanded primary from 6 to 8 years. Given that the cost per student in primary was half the cost per student in secondary, resources were liberated for an expansion of secondary education to all students willing to pursue studies after graduating from primary.

Increasing the Student–Teacher Ratio

Empirical studies of the effect of classroom size upon student achievement are far from conclusive because there is evidence to support the positive impact of both large and small classes. Haddad (1978, p. 12) notes that these studies seldom indicate the size of the small and large classes, that comparisons of results across studies are difficult because of the difference in the measures used, and that variables such as methodology of instruction are often not considered in the research designs. It does appear, however, that large classes do not necessarily result in decreased student achievement. Relying on this last consideration, several countries have proceeded to set up larger classes. Average class sizes have been increased in Chile (from 36 in 1975 to 39 in 1979), Peru (from 31.2 in 1975 to 37.4 in 1980), and several other countries. In several countries this policy has liberated resources for the provision of textbooks. The net results may show an increase in quality. However, in other cases finance ministries have diverted the savings to other purposes. Also, it may not be advisable for countries with well-trained teachers, i.e., who are able to give more individualized instruction, to sacrifice this capability by increasing class size to the point that it can no longer be provided.

Provision of Low-Cost Textbooks

Several countries provide textbooks, but decisions about their production are not always rational. Not enough attention is paid to the physical characteristics of the books. For students previously without textbooks, 50 pages (and not 200) may be the optimum size for a first book. A modest size also affords teachers the opportunity to become acquainted with the materials. If textbooks are used in the school, it may be initially sufficient to provide one book for every two students. If loose-leaf pages are used instead of bound volumes, the cost per page may be reduced by half. The use of colours has a variable impact, but may average about 20% above the cost of single-colour materials, and the use of newsprint instead of bond paper may save 30%. In the case of Peru, it was estimated, assuming a run of 100000 copies, that the standard cost of 2.50 soles (as of 1982, S/500 = U.S.$1.00) per page could actually be reduced to as little as S/0.84, depending on the strategy used to produce textbooks. Because more countries are relying on the use of printed materials, it is important to be aware that more textbooks may be distributed, hopefully raising the quality of instruction, if decisions about production costs are carefully made.

In the future, other strategies may also be explored. One example is to make deliberate attempts to increase the size of schools. This strategy is supported by evidence that suggests that small schools are not always related to better educational outputs. Efforts to train teachers to work in multigrade classes and to open schools to all elementary grades may help to reach a more efficient school size. Improvement of promotion rates (decreasing repetition) should also help to increase school sizes with little additional costs.

Half of the strategies described above require only a reshuffling of available resources; the other half require additional resources. However, it is possible that most of the additional resources can be obtained through savings gained in the reduction or elimination of inefficient or unnecessary practices or programs. Estimates prepared for Paraguay and Chile suggest that incorporating several innovations discussed in this section (training parents, creating multigrade schools, providing textbooks in primary schools, providing transportation, and providing canned TV programs) would result in a cost increment equivalent to 0.2% of the GNP in those countries; however, a simultaneous increase in the number of students to 40 per teacher could significantly offset this cost (Schiefelbein 1982).

The above innovations suggest three strategies based on the reshuffling of resources:

• *Increasing the role played by the family*: Early stimulation techniques, readiness programs for future first-grade students, and remedial drilling in math, reading, and writing call for more active roles by parents.

• *Changing the role played by teachers*: It is difficult to achieve immediate results without a concerted compaign; however, in the long run the encouragement of active methods in the training of teachers will infuse new attitudes in the teaching staff. Workshops in leadership strategies for principals may accelerate the whole process.

• *Changing the organization of schools*: Offering complete primary education by training teachers to work with multigrade classes may have effects on the achievement of basic education, on the full use of available resources, and on the individualization of instruction. If students do not have enough books available, some investment must be made in reading or math materials (or in training the teachers in the collection and use of newspapers as classroom materials).

Some of the innovations discussed at the beginning of this section suggest five strategies calling for additional resources:

• *Provision of textbooks*: Most countries have both the technical competence to develop materials relevant to the local environment and the industrial capacity and financial resources to produce them. Books closely matching local needs may be imported, however, if problems are perceived to be too great for domestic production. It may be more difficult to develop evaluation programs to ensure the constant improvement of the printed materials.

• *Expansion of preprimary facilities*: In many countries there are schools with unused capacities, but a massive expansion of preprimary education eventually requires more buildings and teachers. Preprimary expansion strategies are intended only for those countries that are presently attending the needs of the entire population of school-age youths that actively demand a place in the school system.

• *Remedial workshops*: Implementation of remedial aid in the formal school may be included in the earlier section on recombining resources as part of a change in school organization, but the launching of community centres operated by trained community members requires a gradual expansion and the creation of certain new traditions. However, the success of pilot experiences in the operation of such workshops, gives some hope for the success of a massive effort in this area.

• *Measurement of academic achievement*: Most developing countries have the personnel with technical skills to prepare and process tests; in fact, five Latin American countries are already operating such measurement programs to select future university students. Measurement is technically feasible, although problems may be envisaged in the administration and tabulation of mass-scale testing, especially in large countries.

• *Improvement of supervision systems*: This requires a level of management efficiency that is scarce in developing countries; but given the long-term impact of good supervision (or monitoring) practices, it is important to include such efforts in spite of the great difficulty likely to be encountered in their implementation.

Some of these strategies have been applied in two countries of different levels of development: Chile and Paraguay. Outcomes of these experiences showed that repetitions in the initial 1965–70 period dropped from 50%/year to 40% — a disappointing result, considering the concerted efforts that included press compaigns, teacher retraining, early first-grade enrolment (at 6 or 7 years of age), school food programs (breakfast and lunch), improved curriculum, provision of textbooks, promotion based on attendance, remedial training periods, social aid, and classroom television. However, in succeeding years (1970–80) repetition has been declining in spite of the fact that no further efforts were made. This

suggests a long gestation period for the impact of these innovations.

A second comment (based also on the analysis of the Chilean and Paraguayan programs) deals with research and evaluation processes that should accompany the implementation of an innovation. A plethora of variables will emerge to threaten the feasibility or success of any improvement effort. A series of complementary innovations and research studies must be carried out in several phases of such a program. Some amount of research may be necessary (as in several agricultural experiences) for the early detection of unanticipated constraints or problems and for the design of variations or new procedures to increase the effectiveness of the innovation under local social conditions.

Innovations in the Study of Educational Costs

As interest mounts in identifying innovative techniques and procedures to reduce educational costs, it should be accompanied by increased understanding of these educational costs. Most traditional cost studies have used economic approaches and presented data aggregated at macro levels, usually by levels or types of education. It would seem, therefore, that studies using different perspectives and smaller units of analysis would provide us with a more precise understanding of the nature and structure of educational costs.

In this respect, a study conducted at the school level and using a socioanthropological approach is most illuminating (presented in a forthcoming publication of Oficina de Investigaciones Socio-Económicas y Legales (OFISEL) entitled "Rural Primary Educational Costs in Colombia — Case Studies" and conducted under IDRC support). This study focused on the identification of investments and operational costs of six primary schools in rural areas in Colombia. Schools from different socioeconomic regions were chosen on the assumption that different relations of land tenure and productivity within the community affect the financial patterns of the school.

The Colombian study had several objectives: first, to determine the level of congruence between educational costs (expenditures) budgeted by the central government and actual school costs; second, to identify the various parties who incur educational costs and the relative magnitude of the various cost components; third, to assess the possibility of altering the actual composition and distribution of these costs; fourth, to establish whether resources derived from government budgets do in fact reach the school and if so in what proportion; and fifth, to identify possible alternative sources of finance at the school level.

The concept of cost utilized in the study differed from the traditional economic definition in that it considered all resources necessary to the functioning of the school in a particular context — whether contributed by the state or the community. Thus, student uniforms were included; also included were teachers' expenses for lodging and transportation whenever they had to work in a community that did not have rental housing available. Indirect costs were treated separately from direct costs and taken into account only insofar as they affected the operation of the school unit. (Indirect costs are estimated using methods different from those used to calculate direct costs.)

In many developing countries, including Colombia, expenditures by the public sector are classified into operational and investment costs on the basis of the time these take to be consumed. Operational costs are those spent during a fiscal year and investment costs those that take place across several years. This type of classification is highly susceptible to economic crisis, because whenever governments reduce their budgets (not an infrequent occurrence), the investment category is the first affected. This is unfortunate because within this category are included items such as in-service training and programs of educational research and dissemination.

The study found that although the state budgeted an annual cost of 3813 pesos (as of 1982, P64.10 = U.S.$1.00) per primary school student, actual costs in the six rural schools ranged from P3740 to P9420 per student enrolled and from P7040 to P13110 per student promoted. Although the average budgeted and average annual costs for the six schools for personnel were very similar (P3240 and P3400 per student, respectively), the actual cost per student enrolled for the six schools was much greater (P5980) than that identified in the public budget (P3813). This emerged because of two factors: first, many expenses not considered in national budgets occurred at the local level; second, because there was no clarity regarding which local agency should provide services and repairs for the school, many of these costs were covered by the community itself.

Table 2, which shows the composition of direct annual costs, indicates that although operation costs are considerably higher than investment costs, teacher salaries do not represent as high an educational cost as they were thought to. In other words, although teachers' salaries may represent over 80% of educational expenses, they do not

Table 2. Composition (%) of the direct annual cost (within parentheses) in six Colombian rural schools, 1980.

	Case 1 ($1584.00)[a]	Case 2 ($254.10)	Case 3 ($591.60)	Case 4 ($295.70)	Case 5 ($348.70)	Case 6 ($994.00)
Operations	93.2[b]	80.1	89.6	90.7	82.7	90.3
Personnel	63.1	44.9	56.8	45.6	65.8	52.1
Teachers	62.5	40.4	55.1	43.7	65.8	51.0
Administrators	0.6	0.5	1.7	1.9	—	1.1
Materials	25.6	31.9	25.7	39.7	13.5	30.6
Group	0.3	0.7	1.5	0.3	0.5	0.9
Individual	25.3	31.2	24.2	39.4	13.0	29.8
Service	3.9	2.6	3.7	2.0	—	5.6
Transportation	1.1	1.2	1.4	2.0	—	1.8
Water and electricity	—	0.8	—	—	—	0.1
Lodging	2.8	0.3	—	—	—	1.5
Recreation	—	—	2.2	—	—	—
First aid service	—	0.3	0.1	—	—	—
Public relations	—	—	—	—	—	2.2
Maintenance	0.6	0.7	3.4	3.4	3.4	2.0
Investment	6.8	19.9	10.4	9.3	17.4	9.6
Land	—	0.6	0.2	0.3	0.1	0.6
Construction	4.8	16.7	8.0	5.8	13.5	6.7
Classrooms	3.0	10.2	3.6	5.7	5.1	4.1
Bathrooms	—	1.4	0.8	—	0.7	0.5
Recreation	1.0	1.3	0.5	—	—	—
Teachers' lodging	—	3.8	0.5	—	2.4	0.5
Storage	0.8	—	2.6	0.1	5.3	1.6
Equipment	0.7	2.6	2.2	2.2	3.8	2.0
Furniture	0.4	0.6	1.4	2.2	1.3	0.8
Instructional aids	0.2	0.9	—	—	0.3	0.8
Library	0.1	0.9	0.1	—	0.7	—
Various materials	—	0.3	0.7	—	1.5	0.4
Repairs	1.3	—	—	1.0	—	0.3
Supplementary programs (Not included in the annual cost)	—	—	31.6	—	—	—

[a]All costs are in Pesos (as of 1982, P64.10 = U.S.$1.00).
[b]Operations plus investment percentages in each case total 100%.
Source: "Rural Primary Educational Costs in Colombia — Case Studies," OFISEL, 1981.

represent the same degree of cost. In the six Colombian case studies, personnel costs were found to range from 44.9 to 65.8% of the total cost. On the other hand, expenses for materials were found to be surprisingly higher than anticipated; they ranged from 13.5 to 39.7% of the total cost, and in one of the case studies (case 4) the cost of teachers was found to be almost the same as that of materials.

It should be noted that the costs incurred for materials referred mainly to student costs and that over 60% of these costs were caused by the acquisition of school uniforms according to official specifications. This is a rather tragic finding. It suggests that teachers' costs in the rural areas are very low (because salaries are not much higher than the costs of minimum materials). However, very significant family resources go to cover educational costs with no real pedagogic need (i.e., uniforms).

Regarding sources of revenue to cover educational costs, the Colombian study found that, contrary to the belief that the private sector does not contribute to public education, it in fact plays a significant role. Table 3 shows that the state contribution ranged from 47.1 to 84.9% of the total costs per student. The remainder of the costs were covered mainly by the family, which incurred expenses for uniforms, educational materials, and student transportation. Table 3 also shows that within the state-derived costs, there were significant contributions made by the municipalities and institutions that seek integrated rural development (e.g., Institute for Family Welfare).

The researchers found a positive association

between government support of schools in the community and the presence of social conflict in the area. They also noted that the variability in the support given by noneducational state agencies was related to the interests of these agencies. In one example (case 1) the State Oil Company contributed to the school because the company had been accused of polluting the community's river; in another instance (also in case 1) the National Tourist Corporation contributed to dispell doubts in the community that the latter would be negatively affected by tourism.

The Colombian study found that a lack of coordination characterized the financing of education by noneducational state agencies and that decentralized agencies tended to use educational funds to support particular political groups. Thus, these agencies tended to be more active in periods preceding regional elections. The study also found that some programs, such as school cafeterias and school garden plots, failed due to the irregularity with which financial resources were provided. These programs lasted very briefly; support for food and teacher training was often suspended. In cases where these wastages occurred, community members were found to be aware of these circumstances and consequently disinclined to support the school.

Family contributions were found to be significant. Table 3 shows that parents supported from 12.9 to 41.9% of the annual student costs. These contributions went not only for uniforms and educational materials but also for the land for the school, to pay teacher salaries when the government did not cover existing vacancies, and to provide maintenance and repair services.

Regarding the possibility of increasing the contributions to educational costs from sources other than the state, the study concluded that both noneducational state agencies and regional administrative agencies could be persuaded to express more support for specific complementary programs such as the school cafeteria and garden plots mentioned above. If their support could be constant, the new programs were seen as a distinct possibility.

As to the possibilities for increasing the financial contribution by the family and the community, the

Table 3. Student costs (%) by funding source in six Colombian schools, 1980.

Source	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6
Subtotal — state	69.6	47.1	72.7	52.4	84.9	64.0
State — educational	67.1	47.1	39.4	29.4	84.9	39.3
Ministry of Education, ICCE, and E.N.	4.5	0.6	0.6	—	15.5	3.5
Regional Educational Funds	62.6	45.3	38.8	29.4	67.9	34.6
ICETEX[a]	—	—	—	—	—	1.2
DAINCO[b]	—	—	—	—	1.5	—
Departmental Secretaries of Education	—	1.2	—	—	—	—
State—noneducational	2.5	—	33.3	23.0	—	24.7
State Oil Company	1.2	—	—	—	—	—
National Tourism Corporation	0.4	—	—	—	—	—
National Apprenticeship Program	—	—	5.6	—	—	—
Institute for Family Welfare	0.1	—	23.5	—	—	—
Municipality	0.8	—	1.9	17.2	—	23.3
Department	—	—	2.3	5.8	—	—
Departmental lottery	—	—	—	—	—	1.4
Subtotal para-state	—	15.7	—	—	—	—
Coffee Production Committee	—	15.7	—	—	—	—
Subtotal private	30.4	37.2	27.3	47.6	15.1	34.4
Family	26.2	30.9	18.6	41.9	12.9	29.6
Teachers	3.8	1.4	1.8	2.0	0.1	2.8
Community	0.4	2.8	3.7	3.7	2.1	1.3
Federation of Development Studies	—	—	3.1	—	—	—
Religious	—	0.3	—	—	—	—
Private	—	0.6	0.1	—	—	—
Firms	—	1.2	—	—	—	0.7

[a]ICETEX is a government agency in charge of student loans and scholarships.
[b]DAINCO is an institution that administers government development programs in the "national territories."

study concluded that the outlook was not very promising. In many cases, the contribution by parents was obtained by coercion, through threats of temporary suspension or expulsion of students whose parents do not offer support. In many communities, especially in those characterized by subsistence farming, parents could contribute only labour and consumer goods. Furthermore, parent support was found to vary, depending on the value education had for them. Thus, in communities where the supply of jobs was low or where the labour force did not have to be skilled, there was little interest in and support for education. The study also found that the community tended to be aware of the level of the school's efficiency: in a school where 15% of the government funds went to support the administration, the community was reluctant to support the school maintenance service.

The study concluded that it would be unlikely that the community would support a greater financial contribution without its participation in the development of new programs to tailor these to community desires. But participation appeared to be precluded by the existence of detailed and inflexible educational programs designed by the national ministry. Two additional conclusions from this study were that there is room for much greater efficiency in the use of state resources, and that the actual composition of public education budgets must be expanded to include many costs now ignored.

Conclusions

This review of educational innovations focused on three types: those innovations of a technological nature, those that have occurred in nonformal education, and those designed to improve the internal efficiency of formal education systems. The experience with technological innovations shows that the use of educational radio offers considerable promise for expanded educational coverage at low per-student costs. Given their relatively inexpensive technology, radio programs can be offered at costs much lower than those incurred by traditional education. Other very appealing features of radio are its ability to reach unattended rural populations and motivated youths and adults unable because of time or distance contraints to attend regular educational programs. The ability of radio as a medium for conveying information, even abstract information as in the case of math programs, has been demonstrated rather conclusively. It is a tool that should receive more attention within formal educational systems.

The evidence for television thus far has shown mixed results, in terms of costs and effectiveness. It appears very risky and expensive to introduce this technological innovation in countries where the level of industrialization and skilled manpower is very low. On the other hand, in developing countries with reasonable existing levels of electricity consumption and widespread use of television, the use of this technology for educational purposes would seem to be quite feasible, especially in the more modern urban areas where television receptors abound and where television facilities are underutilized (e.g., few morning programs exist). Television can have significant cognitive effects, but these would seem to be more dependent on curriculum content and lesson design than on the nature of television itself. Logic would lead one to believe that if radio programs, which are based only on aural messages, can be effective, it is probable that similar messages when reinforced by visual images should not be less effective.

The few studies of self-instructional materials indicate that this innovation can result in significant savings in per-student costs and that it does not produce a decrease in the cognitive gain registered by students. The main obstacles to the widespread use of this innovation seem to be the resistance offered by teachers to implicit threats of job reduction and the society's general belief that teachers are needed for learning. Because these two obstacles are so strong, it is quite probable that self-instructional materials will not achieve immediate mass replication.

In the area of nonformal education, multiple innovations have taken place among rural communities throughout the world. These are relatively inexpensive innovations because they rely heavily on the initiative of devoted leaders and the commitment of participants at the local level. It is impossible to present a systematic analysis of the large number of nonformal education innovations in terms of their effectiveness. The most one can conclude is that these innovations can be effective if leadership and interest emerge, and that they can result in considerable personal, community, and social benefits.

Outcomes produced by nonformal education, such as schemes for generating income concurrent with learning activities, training to meet local community needs, and the development of indigenous organizations and entrepreneurs can be potentially effective ways to integrate education into a larger development perspective. But it would be naive to assume that nonformal educational innovations alone, whether efficient or not, are adequate to produce real economic benefits for the people most in need of them. Innovations of this

kind must be coordinated with a coherent overall economic policy to produce positive tangible effects. With few exceptions, these innovations are based on the assumption that if the economic pie is made bigger, more will eventually be made available to those who have less. By benign manipulation of the educational and service delivery systems, innovation designers hope that disadvantaged groups will enter the modern world more efficiently. All this assumes that poverty can be alleviated within the current political context, because the innovations in use absolutely avoid references to possible relationships between poverty and political powerlessness.

Within existing formal educational systems, there are many innovations that can be implemented to increase the internal efficiency of the system. These innovations amount to decisions about the use of teachers, classrooms, textbooks, family support, supervision, remediation, and measurement of academic achievement. The interesting feature of these innovations is that they call for a reconsideration of present financial allocations within schools and address procedures that can be modified without necessarily demanding additional resources. The fact that there are so many possible initiatives of this type (19 are identified in the review) suggests that attempts to reduce educational costs must be accompanied by serious efforts at educational decision-making, which calls for a thorough annual reexamination of educational budgets — not merely a preparation based on previous expenditures and allocations. The procurement of books, the creation of multigrade schools, and the provision of teacher training through distance education deserve particular attention.

There is still much to be learned about educational costs. It appears that studies taking the school level as the unit of analysis are sensitive enough to identify sources of inefficiency as well as sources of additional financial support for the school. Any attempt to improve the internal efficiency of schools would benefit greatly from an increased understanding of present costs and expenditures at the school level.

The innovations discussed in this review demand in some cases cost contributions by parents and students. Because many of these innovations are aimed at rural and marginal urban classes, it could be argued that they are disguised attempts to make the poor pay for educational services and, thus, subsidize costs of services that go for middle-class groups. Nevertheless, where there might indeed be a shift of costs at work, it would be senseless to stop self-help efforts on this account.

A more serious argument is that education provided by technological innovations and that which occurs through nonformal approaches have a second-class status because they are marginal forms of education addressed to marginal groups. The contention by some critics is that emphasis on innovations that utilize these means will result in the emergence of a dual system of education — one mainstream and the other marginal. This is of course, probable, but it could be said that the public education system is already marginal (i.e., low in quality and prestige) compared with the private school system in many developing countries. To worry at this point, therefore, about this likely duality is both late and superficial.

It should be underscored that if the objective is to reduce educational costs while providing good-quality education, there are two main, and complementary, avenues to accomplish this. One is to increase the efficiency of educational systems. The various innovations discussed in this review address this issue and reduce public costs at the same time. The second avenue would be to increase the private financing of schooling. At present, the tertiary educational sector not only shows a very strong bias toward serving the middle and upper classes but is heavily subsidized by the government. It would seem appropriate, therefore, to promote a larger private share of university costs. In this manner, expenses now in the tertiary sector could be released for use in the primary levels as well as in nonformal education initiatives. To be sure, increases in the personal costs of higher education would be opposed by influential political forces, but this process could be implemented gradually and applied in combination with other incentives.

Finally, it should be noted that educational innovations in developing countries are usually triggered by external sources. International agencies have played an important role in the introduction of many of these innovations. It was noted above that external funding has given these innovations a temporary and experimental character. A recommendation that seems to follow from this is that donor agencies should continue to fund innovations while emphasizing a long-term (perhaps 5 – 10 years) supporting role.

This paper was written with the collaboration of Michael Basile, Alba de Cárdenas, and Ernesto Schiefelbein. Their help was invaluable in the preparation of the sections on nonformal education, innovations in the study of educational costs, and innovations to improve the internal efficiency of schools, respectively.

Priorities and Problems in Education for Development

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This study was prepared at the request of the Canadian International Development Agency (CIDA) as a contribution to the discussions of the meeting of donor agency education staff at Mont Sainte Marie, Canada, 19–21 May 1982. To ascertain the present policies and practices of certain contributing governments and international agencies, it was agreed that I should speak with the appropriate officers of the development cooperation agencies of the Netherlands, Sweden, and Canada, and that I should also meet with representatives of the United Nations Educational, Scientific and Cultural Organization (UNESCO), the International Labour Office (ILO), the World Health Organization (WHO), the United Nations Children's Fund (UNICEF), and certain Commonwealth institutions in London.

In undertaking this survey, it seemed to me that more was expected than to determine if financial support for educational development in Third World countries was being sustained. The trends were certainly important in view of the impact of the economic recession on the social policies of certain western governments with a spillover in international policies. The related economic hardships suffered by developing countries almost certainly affected the funds available for education. But equally important were changes in the priorities in educational support on the part of contributing governments, many of them in response to changes in the educational policy of the governments directly responsible for the planning and administration of education in the interest of their people.

The most important changes in educational policy resulted from a major shift in the philosophy and practice of international development. The belief that dominated the 50s and 60s that the transfer of science and technology of the industrialized countries to the economically backward countries would lead to the eradication of poverty for the mass of the population turned out to be fallacious. While some economic growth was measured, the majority of the population remained in absolute poverty and the gap between rich and poor nations grew wider. By the mid-70s, the concerted voice of the Third World demanded a restructured international order to assure a more equitable distribution of the world's resources, greater equality of distribution within nations, sometimes with genuinely revolutionary overtones, and a substantial increase in the contributions of the rich nations to international assistance.

The 1980s opened with more and more of the Third World nations prepared to chart their own course of development, taking into account the particular needs, resources, and cultural goals of their people. Relying in any case on their own resources for the major share of the funding of development, they were determined to increase their self-reliance and break clear of their dependence on the countries of the developed world. The same attitude and policy applied to their educational approach. Originally it had been a replica of the system in the industrialized countries, closely linked to the technical and professional needs — not to mention the class interests — of the modern, mainly urban sector. Now educational leaders thought in human terms — the human needs of the formerly neglected sectors of their society, the legitimate demands of all their people for the competent means to master their environment, the aspirations of their people for cultural and spiritual fulfillment.

I should like to say a little more about this aspect of the educational approach, which was clearly evident in the course of this investigation and accounts in some measure for the forms this study has assumed. People are in the focus of the educational picture — as beneficiaries, as participants, and as contributors. There is no field of human activity in which there is a greater sense of shared goals and aspirations. This applies immediately to those who are active participants within the educational process. But it also expresses itself in a strong sense of community, linking people outside the process with those within. The official interest of contributing governments is, to some extent, an expression of this popular concern, but it is always paralleled by a very active interest on the part of people, as individuals or as members of organizations, an

interest that transcends national boundaries.

Before turning to a consideration of some of the priorities and problems of education for development that I encountered during my European consultations, I should like to say one word about the factual situation in regard to financing education that was made known to me. In the case of the three governments whose officers I consulted, financial constraints were not a prime consideration. The Netherlands and Sweden have maintained two of the highest levels of contribution to development assistance among all industrialized countries, amounting to more than 1% of gross national product (GNP). Canada's percentage is considerably less but it stands up well among contributing nations and its yearly allocation is increasing. In all three instances, a higher proportion appears to be directed each year to educational support. In the case of the international agencies I consulted, the picture is not as bright. Although interest in educational support is higher than ever, the funds available either directly from governments or from the United Nations Development Programme (UNDP) — the major source of funding — have suffered drastic curtailment. The Commonwealth institutions, with great potential for contributing to cooperative educational development, are greatly underfinanced.

Rather than attempt to put into this introduction a summary journal of my visits and encounters as I traveled from The Hague to Paris to Geneva to Stockholm and to London, I have tried rather to identify certain findings that have emerged out of one or out of several consultations. The consultations were more than a device for acquiring some information that I might just as easily have found in a book or a report. I have just remarked that "People are the essential focus of the education picture — as beneficiaries, as participants, and as contributors." In most cases those I talked with were participants in some aspects of the educational process and the interviews were a shared experience for which the actual setting or the historical context might have relevance. Some parts of my study may reflect this shared experience more than others.

To begin with, my visit to The Hague reinforced my strongly held conviction that the most useful support for educational development is the natural cooperation of educator with educator. Dr Heiman Quik, first Director of the Netherlands Universities Foundation for International Cooperation (NUFFIC) used to say: "Get this straight: NUFFIC is not part of the Dutch aid program. It is an organization of universities and specialized training and research institutes engaged in a cooperative educational effort with similar institutions in developing countries. We get support from the Dutch government but we are not part of their program of international assistance."

NUFFIC was established in 1952, not long after the Netherlands had ceased to be an imperial power with the independence of Indonesia. The Dutch universities in collaboration with the government decided that the surfeit of technical and professional expertise associated with the administration of an empire should be made available to the new nations that came into being in the postcolonial era. Some 18 specialized institutes were established, sometimes on an independent basis, sometimes in association with a university, and under the coordination of NUFFIC their resources and those of the universities were made available for teaching, training, technical assistance, and research to students and professionals from developing countries.

There is always a danger in such an approach that despite an emphasis on cooperation a feeling will persist of superior scholarly endowment that one is prepared to share with others. But in this visit to The Hague I noticed a distinct change in attitude and practice. There was an increased recognition that important decisions were being taken by responsible authorities in developing countries and that the contribution of scientists and scholars from the Netherlands was a supportive one. It was becoming NUFFIC policy to move their scientific and professional expertise out into the countries of the Third World so as to face in a cooperative way problems that had to be solved in their own context.

This interuniversity cooperation is by no means unique in the case of the Netherlands. In Britain, immediately after the war the Inter-University Council (IUC) launched a very efficient scheme of collaboration between British universities and the universities of the newly emerging nations of the Commonwealth. The IUC retained very effective existence until last year when it was absorbed in the British Council. In Canada, the universities have become increasingly effective in international cooperation with the establishment of the International Development Office of the Association of Universities and Colleges of Canada and the setting up within CIDA of the Institutional Cooperation and Development Services Division. The International Development Research Centre (IDRC) has also given its effective support to cooperative research involving Canadian and Third World institutions of higher learning through its new Cooperative Programs.

In the second place, new emphases in the educational support programs of UNESCO, ILO,

and WHO reflect significant shifts in the educational policy in Third World countries. One of the most important is the shift in focus from the urban industrial sector to the rural sector in the interest of greater equity in the provision of educational opportunities. This is closely related to the reorientation of educational objectives so as to integrate them with a series of development programs aimed at meeting basic human needs, improving the human environment, and broadening the opportunities for human fulfillment.

In UNESCO, there was a new emphasis on the importance of primary education and a new stress on literacy and adult education. In ILO, there appeared to be a movement away from the establishment and staffing of vocational training institutes geared to industry and toward training closely linked to actual crafts and employment in rural as well as urban areas. Great importance was attached to the preparation of detailed training modules, suitable for self-instruction and the upgrading of skills. There was also a new emphasis on training for women and the improvement of the status of women, particularly in rural areas. In WHO, there was a new emphasis on the importance of primary health care with formal and nonformal education at the local level integrated with improvements in agricultural production and nutrition, sanitation, fresh water, and basic health education. Moreover, this integrated community development activity was linked with training and professional health administration at higher levels.

The role of nongovernmental organizations in these new educational activities at the community level is of great significance and there are many examples of its effectiveness. Community development is often served best by the actions of local nongovernmental organizations with cooperative support from international and national nongovernmental organizations. Development is directed to human goals and, as we have noted, in the educational process people are both beneficiaries and participants. But this does not mean that development is essentially a grass-roots activity any more than it implies that basic or nonformal education is true education. What it does mean is that enlightened government policy must find expression in the actual community that is being served and there nongovernmental activity has a vital role. From the standpoint of contributing governments, nongovernmental organizations both national and international, provide some of the most effective channels for the provision of cooperative support. All three governments interviewed are making full use of these channels.

A third feature of educational development evident from this study is also closely linked to the growing self-reliance of developing countries. We are witnessing many examples of regional cooperation in the sharing of knowledge, the sponsorship of collaborative research, and the establishment and maintenance of common training facilities. The education network in Asia sponsored by UNESCO links 1000 educational institutions from Japan south to Australia and west to Pakistan. ILO has given support to a training program for seven countries in east and southern Africa with some funding from Sweden. WHO and UNICEF sponsored a conference on health care in Ethiopia that brought together a number of African countries that were engaged in relating central government health policy to establishing basic conditions of health at the village level.

The Commonwealth presents perhaps the most interesting examples of regional cooperation. With some assistance from the Commonwealth Secretariat, which includes an Education Division and administers a Fund for Technical Assistance, it manages to support joint educational efforts, an extensive scholarship program, and a number of specialized training centres in specialized fields. A unique feature of the Commonwealth is that it includes nations from both North and South and normally succeeds in resolving differences and achieving a large measure of unanimity on important issues.

A fourth area of concern that emerged in this study relates to the capability of Third World countries to draw upon the world's resources of science and technology necessary for the social and economic development of their societies. We have already touched on this subject in our reference to university cooperation and the development of networks or educators and other scholars and professionals concerned with development. A central feature in this capability must be the development of centres of research. Here reference must be made to the role of the IDRC, financed by the Canadian government but operating under an international board of governors. The contribution of IDRC during its first decade has earned it the highest respect in the Third World. It has provided a model for other national centres supporting development research, notably the Swedish Agency for Research Cooperation with Developing Countries (SAREC).

But there are also other research centres related to international development that serve other and equally important purposes. These are directed to a clearer understanding of the development process itself and, in consequence, the role of education in

the process. Within the last decade a number of institutes have undertaken to sponsor research in this field, drawing on the scientific expertise from developing as well as developed countries. One outstanding example, investigated in this study, is the Dag Hammarskjold Foundation in Uppsala, Sweden. Its contribution through research, conferences, and publications has been highly important, with a strong emphasis on the dynamic role of education in economic and social development within changing domestic and international parameters. Other development research centres visited in the course of the study included the International Institute for Educational Planning (IIEP) in Paris, the Institute of Development Studies (IDS) at the University of Sussex, the Overseas Development Institute (ODI) in London, and the Institute of Environment and Development in London.

Finally, Julius Nyerere once said: "Education is liberation." We have observed how the concept of the role of education has evolved from a functional relationship with economic growth — with a consequent income benefit to the possessor of education — into a much more social concept of a contributor to a society that meets the needs of its members with equity and efficiency. But from the very beginning education has meant much more than that. It has been one of the principal agents by which the individual has been freed from the prison of ignorance and bewilderment into a world in which one may find fulfillment as a human being, a world rich in the resources of literature and art and music and other forms of human creativity.

One of the most impressive educational efforts encountered during this study was being carried out in Sweden through the schools and the "people's movements" — as nongovernmental organizations are called — to internationalize education. While the immediate results of the program are to relate the Swedish people to the development cooperation goals of the government, the more basic purpose is to educate the members of a new society on which peace must rest and within which they can discover for the first time the riches of a global culture.

Within the context of our contemporary world, this essential nature of education links together in a single creative endeavour the members of the developed and developing worlds. In fact, such adjectives within this context are seen to be somewhat old-fashioned and even obsolete. The ultimate emancipatory goals of educaton differ very little in the countries of Europe and North America and the countries of Asia, Africa, and Latin America. In all countries, education means a liberation into the rich experience of one's own culture to begin with. But it also means a leading out into the emergent culture of a world that, in Brandt's phrase, is becoming a single community.

The Netherlands and NUFFIC

The shape of any country's program of international development assistance is determined in large measure by its history. The particular character of the Netherlands' program may be traced to the year 1949, the year in which the Dutch lost their Indonesian empire, President Harry Truman announced a new program of aid to developing countries as Point Four of his State of the Union Address, and the United Nations worked out its plans for an Expanded Program of Technical Assistance.

The formal transfer of sovereignty from the Netherlands to the new Republic of Indonesia took place on 27 December 1949. It had been hoped originally that the new independent state might retain some commonwealth-type relations with its former colonial ruler but this was not to be. The Dutch faced literally an embarrassment of riches in the form of scientific and technological expertise that had been acquired and applied in the development of the former East Indies. It was on the initiative of the Dutch universities, with sympathetic support from the government, that it was decided to establish specialized institutes in a broad range of fields, which would be utilized as a resource base for technical assistance and training that could be drawn upon by the newly independent countries seeking to carry out economic development for the benefit of their people. Eventually, 18 of these institutes were established, covering 66 fields.

To coordinate the activities of these institutes, relate their activities with those of the universities, establish effective linkages with institutions and governments in developing countries, and establish a necessary and responsible relationship with the Netherlands government, a national organization was called for. This emerged in 1952 as the Netherlands Universities Foundation for International Cooperation or NUFFIC. It remains to this day as the vital core of international educational support provided by the Dutch people through teaching, training, research, and nongovernmental cooperation with funding from the Netherlands government. As one might expect, the programs under NUFFIC have expanded, diversified, and shifted their emphasis over the past 30 years. There has, however, been no indication of any serious cutback in the educational emphasis or any falling

off in the total development cooperation program, which is one of the three national programs that has reached more than 1% of GNP and maintained that level despite domestic financial strains.

The generous allocation of time granted by the Director of NUFFIC, Dr A.J. van Dulst, and the Deputy Director, Dr Gerard van der Horst, and more than a dozen men and women serving in some section of the educational program permitted me to gain a fair appreciation of the salient points of the present approach. To begin with, NUFFIC must be seen as an umbrella organization under which several quite distinct programs are executed. There is, to begin with, the original International Education Program drawing on the resources of the 18-odd institutes. Then there is the program involving the Netherlands universities that promotes relationships with some 12 universities or groups of universities in developing countries. The impressive Institute of Social Studies, which shares quarters in The Hague with NUFFIC, offers a series of diploma courses designed primarily for public servants from developing countries as well as certain academic courses at the master's level. The Advisory Council for Scientific Research in Development Problems (RAWOO) acts as a coordinating body for research conducted by Netherlands institutes as well as conducting some research of its own. Some Dutch universities out of their own resources initiate projects linked with Third World universities. A sizable number of educational activities are carried out by nongovernmental organizations with some matching financial assistance provided by the Dutch government.

The specialized institutes carry out training activities that are functionally adapted to the upgrading of professional administrators in some branch of public service in developing countries. They concentrate on short-term courses specifically designed to upgrade performance and status rather than to promote academic advancement. The range of specialization is wide, including several branches of agricultural science, health sciences, a wide range of engineering and technical expertise, architecture, housing and town planning, business administration, and so on.

Six years ago, the government insisted that the institutes should carry on more of the activities in developing countries where training and research would be more relevant to actual conditions and perceived needs. A good example was the Bouwcentrum in Rotterdam, which had developed a high reputation in the field of functional construction and town planning. Unfortunately, much of what was learned in Rotterdam within the context of the social and economic conditions of a European city was irrelevant to the critical conditions of urban crowding in an African city. After some basic training in the Netherlands, the study and training was moved into the country from which the trainee came, making use of local training facilities reinforced by experienced builders and planners from the Bouwcentrum. The results were remarkable. This change in emphasis had certain financial implications. The budgets of the institutes were stabilized approximately at the level reached in 1976. On the other hand, the funding of activity in developing countries was allowed to expand — 10 million guilders in 1976, 20 million in 1981 (as of 1982, 2.58 NLG = U.S.$1.00). There was some criticism that the freezing of the institutes' budget and staff was short-sighted, because it was cutting back on the scientific and technological resources of the Netherlands to maintain its important contributions in the Third World.

It is worth interjecting at this point the general goals of NUFFIC that were outlined by Jan Pronk when he headed the Ministry of Development Cooperation. In the first place, its activities should be directed toward the poorest countries and the poorest groups in the poorest countries. In the second place, the end goal of international cooperation should be to support the efforts of developing countries to achieve self-reliance. In both these related objectives, it went without saying that the specific needs and specific targets should be defined by groups and individuals within the countries in question.

The university involvement in NUFFIC, while more general at first, became increasingly focused on relationships with a small number of countries and a small number of universities or university groups within these countries, no more than 12 in all. This meant some impact in depth on the universities in linkages with Dutch universities and concentration on certain fields where needs were clearly defined in Third World countries and the resources of Dutch universities were available to match these needs.

In certain cases it was learned — and this came from an interview with the Director of the Division of Foreign Relations of the University of Leiden — universities themselves, out of their own resources, open up small experimental projects with universities in developing countries. If it appeared after 2 or 3 years that the project or field of cooperation was likely to be successful the project could be extended with support from NUFFIC. There were three main channels for education funding in the Netherlands: (a) funding for immediate university costs, salaries for teaching staff, funding for immediate research, and funding for administra-

tion; (b) funding for special research projects with wider involvement; and (c) all other funding, including the funding of international programs and projects including all activities under NUFFIC.

The largest and probably most important activity under the NUFFIC umbrella was that of the Institute of Social Sciences in The Hague. Under the Institute several programs were carried out, most of them directly related to the strengthening of education related to development. The first were 6-month diploma courses for middle-level public servants, 90% of whom were from developing countries. There were four separate programs in the diploma course and some 200 students attended the courses each year, returning to their home countries, presumably with upgraded qualifications. A second course had stronger academic emphasis. It was a Master's course in which the earlier undergraduate work had been done in a developing country. Frequently, close links were established and maintained with the institution from which the student came and to which he or she might return. There were also four or five doctoral students. I got the impression that increasingly the postgraduate studies were related not only to the needs of developing countries but also to strengthening the capabilities of universities in developing countries with which the students were related.

The Institute also sponsored research, some carried out abroad, some in The Hague. There were four to six research fellows from developing countries and the Institute helped to publish their works. More was being done in the form of group research dealing with specific problems of developing countries. The Institute sponsored short workshops, bringing together experts in different specializations from developing and developed countries. It also provided staff for consultancies to assist ministries concerned with projects and programs involving the Third World and for consultancies of a joint nature in association with, for example, the Institute of Development Studies (IDS) of Sussex University or with one of the other members of the European Association of Development Research and Training Institutes (EADI).

A fairly recent development in the Netherlands policy of international cooperation was the establishment in 1977 of RAWOO. It was formed on the initiative of the then Minister of Development Cooperation, Mr Jan Pronk. In his announcement of the launching of RAWOO, Mr Pronk said:

> Development related research can be aimed at analyzing the processes that cause poverty. It can also pinpoint the instruments with which the assistance can most effectively achieve the goals of the Dutch development policy. But research that is relevant to development can also promote the self-reliance policy of the developing countries.
>
> It is now increasingly recognized that development is primarily a question of the poorest population groups and their basic needs. If any research is to be relevant to development, whether in the first, the second, or the third case, it must ultimately be directed at these people and their problems.

RAWOO was established with a twofold purpose: as an advisory body on research policy and priorities to the Minister of Development Cooperation and as an advisory body to the Minister of Science Policy on development-related research carried out by the universities and other institutions in the Netherlands. There were many issues to be considered in working out guidelines for both roles for the Council, which was constituted of representatives of the research community and the policymakers: how to gauge the needs of developing countries to be met by research, who should be the beneficiaries of research, what value judgments in regard to social policy had to be made in determining research objectives, what relationship should be looked for between research and policy to implement the results, how to reconcile the research goals of Netherlands researchers and goals of development in Third World countries, where should the research be done, how to foster greater cooperation among Dutch institutions, and what is the role of interdisciplinary research?

An interim report of the Council established a twofold objective: (a) to set objectives and criteria for the research program for the Minister of Development Cooperation, and (b) to promote regional research programs in a number of developing countries. On the first objective, the Council enunciated five criteria to guide the Minister: research should be problem, solution, and policy oriented, and it should be multidisciplinary and serve to strengthen the research capacity of the researchers in the developing country. On the second objective, RAWOO advised the Minister to set up research programs in two regions, the Sahel and Southern Asia. Both these programs are now well advanced, with full input from policymakers and researchers from the developing countries concerned.

As to the other advisory function of RAWOO as one of the sectoral councils of the Minister of Science Policy, what has emerged is the inevitable tension between research priorities as established on the basis of perceived needs in developing countries and the priorities of research policies of

specialized Dutch institutions. A report that attempts to summarize the first 4 years of RAWOO puts it this way in its English version:

> To what extent should the Council let ethical and political considerations influence its advice even when long-term policy is concerned? Should one have a consistent social point of view with respect to development-related research? The Council thinks that one should. There is no such thing as *the* development problem, or *the* development issue; it is such a multi-faceted, complex phenomenon that it is up to the observer to impose the order that makes study possible. Moreover, development is not a historically linear process; the structures and policies of the developed countries should not be merely replicated in the developing world. There are many possible paths to development. Nor is science a neutral instrument; the facts that it reveals and the diagnoses it makes do not exist in a social vacuum. One cannot avoid first making a choice. The Council has chosen the side of those in the developing countries who are living beneath the subsistence level. The Council's attention is thus drawn to the root causes of poverty, the problems of independence and to power relationships. Scientific research can seldom offer quick, ready-made solutions. The importance of research for development lies instead in the contribution it makes to structural solutions for the development issue.

Although it would seem to involve a measure of arbitrary choice to attempt to establish a priority among possible fields of specialization, an attempt was made by the Council early in 1981. The following were selected as meriting special emphasis: tropical health care, energy, and international dependency relations. Two goals were considered as deserving major consideration in directing Dutch researchers toward development problems: there must be long-term links between Dutch research institutes and their counterparts in the Third World, and Dutch research may not be attuned at the expense of the research capacity in the developing world.

The Council, as we have indicated, is drawn from the research community and the ministries directly or indirectly concerned with international development. The universities and specialized institutes provide members in the fields of human and social sciences, natural and technological sciences, and medical sciences and agricultural sciences. The ministries represented include Foreign Affairs/Development Cooperation, Education and Science, Science Policy, Agriculture and Fisheries, and Economic Affairs. In addition, there are representatives from the employers' organization and the trade unions. The secretariat of the Council is provided by NUFFIC, with the Deputy Director of NUFFIC, Dr G.J.C. van der Horst, acting as Council Secretary.

The goals and administrative operation of RAWOO may be compared with those of IDRC and SAREC. They throw considerable light on the orientation of the program of the Netherlands as it relates to the broad purposes of education and training within the context of development.

The Netherlands government program for international cooperation and development, as mentioned previously, has been sustained for several years at an amount equal to 1% of the national GNP. In 1978, it totaled 3 billion guilders, in 1982 it will amount to 4.2 billion guilders. Of this, it is estimated that educational activities under NUFFIC constitute about 1.5%. However, these do not include the core funding of the 18 institutes that provide the resources base for much of the specialized training carried out for and in developing countries, which are at present financed by the ministries of education, agriculture, health, and others according to the field of specialization. Nor does it include the joint funding of NGOs, much of the work of which is educational, chiefly in the rural areas and associated with health care, sanitation, women's activities, and community development in general. If these activities are added in, the proportion of Netherlands assistance going to education could be increased to about 4%.

It is important to note that NUFFIC activities are carried out under the direction of a Board that is drawn from the Dutch professional and business community. Although final decisions on the main directions of policy and even on specific programs call for ratification by government authorities, the voice of the university and professional community is still strong. The responsibilities of the Board establish a link with the Dutch community and strengthen the continuing support given to the NUFFIC program and the wider program of international cooperation by the people of the Netherlands.

The United Nations Specialized Agencies: UNESCO, ILO, and WHO

The Specialized Agencies of the United Nations are an outward manifestation of a widely held belief after World War II that peace depends not only on collective security agreements and effective instruments for the pacific settlement of disputes but equally on international cooperation to find answers to the basic human concerns in day to day life — food, health, shelter, education, employ-

ment, communication, and the protection of human rights.

This belief found expression in Article 55 of the U.N. Charter that called for the promotion of: "higher standards of living, full employment and conditions of economic and social progress and development"; "solutions of international economic, social, health and related problems; and international cultural and educational cooperation"; and "universal respect for, and observance of, human rights and fundamental freedoms for all without distinction as to race, sex, language or religion."

Delegates to the San Francisco Conference considered this affirmation of such importance that they raised the status of the Economic and Social Council to that of a principal organ on a par with that of the Security Council and the Trusteeship Council. It is generally admitted that this new regard for international economic and social cooperation that found expression in the Charter came as a result of pressure from nongovernmental organizations present in San Francisco that believed strongly, to quote the preamble to Article 55, that joint and separate action must be taken "with a view to the creation of conditions of stability and well-being which are necessary for peaceful and friendly relations among nations."

The statements of objectives — expanded in greater detail in other articles concerning the function of the Economic and Social Council — revealed a marked advance on anything in the text of the Covenant of the League of Nations, although it must be admitted that special commissions under the League succeeded in carrying out pioneer work in fields of health, narcotics control, traffic in women and children, and generally humanitarian relief. Moreover, the one Specialized Agency established under the League, the International Labour Organisation (ILO), through its practice of drafting and securing ratification of international covenants, greatly improved the status and conditions of labour throughout the world.

The U.N. Charter provisions calling for international cooperation to achieve more equitable conditions of living for the world's people expressed themselves in two lines of action, both important. Within the United Nations itself, and specifically under the jurisdiction of the Economic and Social Council, commissions were established for various purposes, all having to do with the promotion and protection of human rights. The Commission on Human Rights drafted the Universal Declaration of Human Rights, which was adopted and proclaimed by the United Nations General Assembly in Paris in 1948. The Commission on the Status of Women carried out effective work in a too long neglected field. An ad hoc commission on minorities awakened the world's conscience on the plight of refugees and displaced persons. Another ad hoc commission on freedom of the press and information began a process of critical appraisal that is still continuing. All of this activity had the effect of providing international codes of conduct by which actions of governments and lesser jurisdictions could be judged. They reinforced the strengthening belief that human rights and the claim to a decent life for all people were proper subjects for international concern. They speeded the process of decolonization. They placed international guarantees behind belated demands for independence. Eventually they were to lead to active international programs of assistance for development of the poorer countries.

The other line of action that expressed an emerging global consciousness took the form of the bringing into being of a large number of Specialized Agencies under the United Nations, each designed to meet a particular area of human need. We have mentioned ILO, the one surviving member of the League of Nations family. Out of a meeting at Bretton Woods, New Hampshire, came the International Bank for Reconstruction and Development (IBRD) and the International Monetary Fund (IMF), to help meet the inevitable postwar financial problems as a result of war dislocation and damage. The Food and Agriculture Organization of the United Nations (FAO) was to mobilize an international effort to assist in the world food problem. So did WHO in the field of health. The United Nations Educational, Scientific and Cultural Organization (UNESCO) was the successor of the prewar Committee of Intellectual Cooperation. Several Specialized Agencies took into account that there had to be institutional recognition of the fact that we had moved into an interdependent technological order. These were: the International Civil Aviation Organization (ICAO), the International Telecommunication Union (ITU), and the International Meteorological Organization (IMO). Others were to come into existence as some new area for international jurisdiction and management became obvious: the United Nations Industrial Development Organization (UNIDO), the United Nations Environment Programme (UNEP), the United Nations Fund for Population Activities (UNFPA). UNICEF is part of the United Nations itself and enjoys a different status.

In the beginning, it was assumed that the Specialized Agencies would be advisory, research, and regulatory bodies in their special field of

expertise. Under their respective governing conferences, they have discharged these functions. Moreover, they have developed an exp rtise in their staff that is frequently drawn upon by their governing bodies. But in 1950, the role of many of them was transformed through the launching of a new international effort to give practical implementation to those articles of the U.N. Charter that called for assisting peoples living in desperate poverty achieve a life of decency and dignity. The United Nations Expanded Program of Technical Assistance was launched and the institutions to carry it out were the Specialized Agencies. The program was funded by the members of the United Nations on a voluntary basis. It had been inspired by the announcement to Congress of President Truman that the United States was about to inaugurate programs of assistance to needy countries and that the United States would be willing to join with others in funding a similar international program under the United Nations. Other countries followed suit, setting up their own bilateral programs and giving support to the international program that was eventually to be known as the United Nations Development Programme or UNDP.

The particular concern of my study was the development programs under the direction or sponsorship of UNESCO, ILO, and WHO with a special interest in their support of education. I began with UNESCO in Paris.

UNESCO

With the assistance of the Canadian National Commission for UNESCO and Giulio Fossi, Acting Director of the Organization for Economic Cooperation and Development (OECD) Development Centre, interviews were arranged for me with staff members of UNESCO and the International Institute for Educational Planning (IIEP).

In UNESCO's approved programs for 1981–83, 19 out of 44 are in the educational sector. Three areas — promotion of the formulation and application of policies and improvement of planning in the field of education; improvement of educational content, methods, and techniques; and intensification of the struggle against illiteracy — account for more than half of a total budget of something over U.S.$100 million.

A new importance is being attached to the literacy campaign, an old enthusiasm of UNESCO, which is now taking on new life. There is also a stress on the importance of adult education. What makes the present priority different from the earlier one is that in both cases apparently the UNESCO policy is in response to increased demands from the developing countries where UNESCO has been active. In regard to literacy, UNESCO budgetary allocations show a 10% increase; unfortunately, although the requests are pressing, it appears that funds are not available for a similar increase in the field of adult education. In both cases, UNESCO is matching its training programs and advisory services with supplies of paper, pencils, books and other reading material, and audio-visual materials and equipment.

Programs in literacy and adult education mark a swing toward the rural areas. There is a new emphasis on basic education and community development. Schools are being regarded not merely as facilities for conducting formal education but as community centres, open beyond school hours for all kinds of integrated educational activities related to raising the competence of all members of the community the better to cope with their environment and become actively involved in the process of community development. These issues were actively discussed with me at the IIEP, which, although closely linked with UNESCO, maintains a degree of autonomy as a research and training centre. I had gone to the IIEP headquarters in the rue Eugène Delacroix to meet the Acting Director, Mr Ta Ngoc Chau. But to my surprise and pleasure I discovered that I was being invited to participate in an informal seminar composed of Mr Chau and six of his colleagues who are resident fellows of the Institute from West Germany, France, Venezuela, Zaire, Britain, and Lebanon. At present there are some 40 men and women from developing countries engaged in studies and research in the Institute who will be visiting Canada on a study tour in late April before returning to their homes.

What impressed me in this seminar was its nonacademic character. We were not talking about theories of education. The members of the Institute, all young, seemed to be very close to the actual situation in the Third World countries from which they and other residents of the Institute came. The discussion ranged over the importance of the various emphases in the formal system of education, the dangers of too great a concentration on higher education, the dangers in education consolidating the establishment in these countries and strengthening the power elite, the importance of the campaigns of literacy as well as the limitations of these campaigns, and the importance of nonformal education.

It seemed to me that the IIEP is one of the most important subdivisions of the UNESCO family. It is in close touch with developing countries, and its

guidelines for directions in educational policy should be of continuing value to donor agencies. The role of the Institute will depend, of course, not only on the intelligence and commitment of its resident fellows but also on its direction. I had the privilege of having a conversation with its new director, Sylvain Lourié, the day before his appointment was announced. He appears to be a man of outstanding intellectual qualifications and a deep commitment to the needs of the Third World. In addition to long service with UNESCO he spent 6 or 7 years in Central America as an educational adviser.

I have already suggested that there is a tendency for Specialized Agencies to become populated with specialists. In UNESCO, you are apt to hear quite a bit about formal schooling and sometimes, in certain quarters, a condescending reference to nonformal education. But that is not always a bad thing. UNESCO from the start has had a concern for quality in teaching. I spent an interesting hour with Nahum Joel, one of whose major interests is how to improve the teaching of science. He showed me some attractive books that did just that, well written, well illustrated. They were designed primarily for Third World students but the high schools of Europe were grabbing them up as fast as they came off the press. I have heard that UNESCO with UNDP backing is just now completing a U.S.$2 million program in Indonesia to improve science and mathematics teaching in secondary schools.

There is that other information that one picks up in Paris in the Place de Fontenoy about the new trends in education that have their origins in Third World countries. Like the Seti Zone project in Nepal, in an area where 12% of the population were literate and only 17% of primary teachers were trained. The government decided, in consultation with the UNESCO senior education adviser, that a new type of teacher must be produced who was not only competent in teaching children but also trained as an agent for rural development with at least one skill in agriculture, irrigation, primary health care, or some other relevant field that was immediately useful to the village.

There is also a remarkable network of 1000 educational institutions in Asia that includes Japan, New Zealand, and Australia as well as Indonesia, Thailand, India, Sri Lanka, and Pakistan. It was described to me by E.R. Prabhakar, UNESCO's Chief of the Asia Section. Its purposes are to bring educators together to share experiences, exchange views on common educational problems, and, where advisable, combine common efforts for common goals. He told how at an early meeting when some proposal was being discussed a Japanese member generously offered to get a gift of U.S.$1 million from Japan as well as some necessary equipment. But he was politely reminded by an educator from Nepal that they were all equal members of an educational network joined together to share in matters of common concern.

The direct forerunner of UNESCO was the Committee of Intellectual Cooperation, but the International Bureau of Education in Geneva (IBE), established in 1925, can claim some share of that honour. Its activities have been to serve as a centre for cooperation among educational authorities throughout the world. Although UNESCO appeared to take over much of its field of interest, particularly after the establishment of the IIEP, it continued its independent existence until 1969 when it was absorbed by UNESCO. Nevertheless, it still maintains its base in Geneva and serves two useful purposes: it publishes the International Yearbook of Education containing valuable information on the educational systems and directions of the majority of the world's nations, and it provides a very useful point of contact with international organizations based in Geneva or holding conferences in Geneva that have a direct or indirect interest in educational concerns.

ILO

The International Labour Organisation (ILO) was created in 1919 by the Treaty of Versailles along with the League of Nations with which it was closely linked. It is unique among international organizations in that it is a tripartite organization made up of governments, representatives of labour, and representatives of employers. Its original and continuing aim is to improve industrial relations and employment conditions of workers. The International Labour Conference, or general assembly of the ILO, has for more than 60 years been drafting international conventions to commit signatory and ratifying governments to the maintenance of human rights (such as freedom of association, the abolition of forced labour, and the elimination of discrimination in employment) and the maintenance of equitable standards covering working conditions, social security, occupational safety, the employment of women and children, and the employment of special categories such as migrant workers and seafarers. In addition to the 156 conventions that have been adopted up until 1981, the Conference has adopted some 165 recommendations as a guide to improved labour relations and working conditions.

The ILO with its permanent secretariat, the

International Labour Office, was the only segment of the League of Nations to survive World War II and, thus, became the first specialized agency of the United Nations. With the advent of the Expanded Program of Technical Assistance, it undertook new responsibilities in providing facilities and staff for vocational training institutions to create the skilled manpower necessary for industrial development with the long-term goals of assisting developing countries to become self-reliant in carrying out their training programs.

It would be a mistake to underestimate the contribution made by the ILO in the development of qualified personnel. Moreover, the philosophy of the organization, based on its tripartite constitution and its commitment to equitable labour relations, has discouraged the tendency to view skilled labour as a necessary component of the industrial process. Nevertheless, as we have noted before, the original programs of development aid were culturally oriented toward western models and value schemes, and frequently took little or no account of priorities in development-planning indigenous to a particular country, let alone the relation of a particular program of industrial development to the satisfaction of the basic needs of the majority of the people. In general, training was focused on the "modern" industrial section of society to the disregard of the rural, agricultural, and "traditional" section.

There are some indications of new policies in the training activities sponsored by the ILO that account for more than 40% of the Organization's technical cooperation expenditures. In 1975, the ILO adopted the Convention Concerning Vocational Guidance and Vocational Training in the Development of Human Resources and along with the Convention detailed recommendations spelled out in some 77 articles. The effect of these was to relate training to a broad range of educational activities within or linked to the formal schooling system, stressing the broad objectives of human development going beyond the acquisition of technical skills, and also emphasizing the importance of participation in the educational process.

Although the convention and the recommendations were aimed at bringing about new approaches in the policies of member governments, they seem to have had some effect on the approaches of the ILO itself. In my conversations with Mr C. Kanawaty and other ILO officials in Geneva, I discovered several new emphases in their training programs.

The training programs at ILO still stress the traditional approach through vocational training and the training of trainers, but there is also increasing concern for the immediate relevance of the skills that are being developed. They should be related to useful and available employment. They should wherever possible be related to in-service training.

Another very important development designed to improve the efficiency of vocational training programs and also open up effective avenues for self-education in relevant technical fields is referred to as Modules of Employable Skills (MES). Training programs are based on precise job specifications, established by analyzing existing jobs. Standardized written and graphically illustrated material is prepared to cover the learning process in all the skills called for in such occupational areas as building construction, automotive, electrical and mechanical engineering, welding, plumbing, etc. The acceptance of such standardized material by industries in various countries makes for uniform standards in training and also the possibility of regional cooperation. The approach, according to ILO, is applicable to in-plant, institutional, apprenticeship, and upgrading and up-dating training programs.

There is some indication of a determination on the part of the ILO to move into the much neglected field of training for the rural areas. Here, of course, there is greatly increased concern evidenced by FAO and the more recently established International Fund for Agricultural Development to take into account the necessity of extending educational and training opportunities to those engaged in the production of food. But the rural community includes more than the farmers and food-growing. There are many independent craftsmen and craftswomen whose standard of living can be improved and their contribution to the community enhanced through training. Mr Zarraga described two such projects, one general training project in the Philippines and a project in northern Kenya involving some 50 000 women in handicraft work that was very much in demand — by women. It was reported that it roused some concern among the men because of this extravagant expenditure on a frivolous item of dress, but it added greatly to the income of those directly involved and raised the sense of dignity for all — makers and wearers alike.

One final example of ILO's contribution to education and training is worth reporting. As mentioned earlier, the title of the project is: Skill Development for Self-Reliance: Regional Project for Eastern and Southern African Countries. The first paragraph of the project description reads:

> The concept of skills development for self-reliance was conceived by educationalists from the

region, not handed down by ILO for acceptance by countries. It was evolved in response to the needs and aspirations of countries of the region, as determined by themselves. As to be expected, national interpretations of the concept have differed according to national policies and objectives.

The countries participating in the project are Kenya, Lesotho, Somalia, Swaziland, Tanzania, Uganda, and Zambia. The project is funded by Swedish SIDA in the amount of U.S.$1.1 million. Senior educational planners from the seven countries drew up the operational policy in 1978 and after discussion and refinement circulated it among the governments for comments and suggestions. UNDP officers and ministries of planning and education were involved in the discussions. While this was going on, ILO's Chief Technical Advisor was visiting national authorities at various levels — decision-makers, planners, organizers, and implementers — to explain the project and get an understanding of what was expected. Those who developed the curricula and those engaged in training of various kinds and at various levels were constantly in touch with the rural people. As the project description states:

> The approach tries to combine faith in the villagers' analysis of their own problems with a macro-analysis of planners operating from the centre. The philosophy of curriculum development, as advocated by the project, emphasizes local participation by villagers in matters affecting their own welfare.

It is a new and hopeful approach. Moreover, it is an approach that is being shared by more and more international agencies as they face the critical problems of development. The Annual Report for 1981 of the International Fund for Agricultural Development (IFAD) contains a chapter headed: "People's Participation in Development." One paragraph reads:

> Development may be described as a process aimed at liberating human creativity to enable the individual and the community to derive the fullest benefit from available resources. It implies not just the better utilization of physical resources such as land and water but the development of the individual. Viewed in this context, the participation of beneficiaries in the design and execution of development projects is not only a means for securing greater effectiveness in the implementation of such projects, but is also an essential goal of development. Participation which fosters human creativity is needed to set into motion a process of self-sustained and self-reliant development.

WHO and UNICEF

Health education has long been regarded as a crucial element in integrated social development. After my conversations with ILO it seemed important that I visit the World Health Organization. The man I had been directed to see was Dr Hakan Hellberg of the Primary Health Care Division. Dr Hellberg comes from Finland and has been associated with a well-known community project in Karelia that involved the entire community in an integrated program to lay the basis for the health of the people. It involved education and access to relevant information, but it also called for changes in personal habits and environmental improvements that would contribute to the support of good health. Dr Hellberg had seen these principles put to good use during years of experience in developing countries.

The approach had been around for some time but only recently had attained its present priority. In the course of its history WHO had made important contributions through its attacks on killing and debilitating diseases, such as small pox and malaria, through campaigns of immunization and eradication — successful in the case of small pox. It strengthened professional health care through nurses training and child care centres. It also promoted health education activities making use of literature, posters, films, and media programs. Unfortunately, over the years it became evident that no great impact was being made in the improvement of the health of the great majority of the people, particularly those in rural areas and in the slums of the cities.

WHO is a decentralized agency with strong regional offices unlike most other specialized agencies with staff concentration in headquarters in Paris, Geneva, Rome, or Vienna. One result of this is that their professional officers are much closer to field conditions where the work is being carried out and the problems are being faced. To them it became increasingly evident that ill health and high mortality were, for the most part, due to environmental factors such as inadequate food and nutrition, polluted water, lack of proper sanitation, and infested habitation. The battle for good health had to begin where these factors were determining the quality of life and be waged in the first instance by those who were experiencing them.

A new philosophy of health care and health education began to take shape that in some measure ran counter to that of the medical profession with its therapeutic approach to the mastery of disease and its centralized, professionally directed, and sometimes paternal, concepts of health education. The

new philosophy of primary health care found wide support in the developing world. The appointment of a new Director-General of somewhat unorthodox and innovative turn of mind set the Organization on a sympathetic course. Dr Halfdan Mahler, now into his second term, comes from Denmark, a country that for a century has had its social thinking shaped by an adult education movement based on a faith in the ability of ordinary people to guide their lives toward satisfactory goals. Dr Mahler apparently found support for this faith in long service in India where tuberculosis was the visible enemy.

A series of decisions taken by the Health Assembly of WHO culminated in a joint action taken by WHO and UNICEF to hold an International Conference on Primary Health Care. The conference took place in September 1978 at Alma-Ata, capital of the Kazakh Soviet Socialist Republic. Out of the conference came the Declaration of Alma-Ata and a detailed conference report that spelled out many of the implications of the new policy.

Some of the statements from the Declaration are worth considering seriously:

- The people have the right and duty to participate individually and collectively in the planning and implementation of their health care.
- Primary health care forms an integral part both of the country's health system, of which it is the central function and main focus, and of the overall social and economic development of the community.
- Primary health care forms an integral part both concerning prevailing health problems and the methods of identifying, preventing, and controlling them; promotion of food supply and proper nutrition, an adequate supply of safe water, and basic sanitation; maternal and child health care, including family planning; immunization against major infectious diseases; prevention and control of locally endemic diseases; appropriate treatment of common diseases and injuries; promotion of mental health; and provision of essential drugs.
- All countries should cooperate in the spirit of partnership and service to ensure primary health care for all people because the attainment of health by people in any one country directly concerns and benefits every other country.

I can see Hellberg facing me, his left hand cupped with the fingers pointing up: "It has to come from the bottom, not from the top. From where the people are, where their health is being shaped by their environment. Where controls have to be exerted to bring about change for the better — through participation and through community involvement. And here is where education is relevant." Then his right hand came into play: "I'm not talking just of grass-roots approach. At the village level there is a need for the community health worker and the traditional birth attendant and others who are concerned with water and sanitation and improving food production. But what is being done in the village is linked to a higher level in the district where more qualified health workers and professional medical workers can provide advice and training and so right up to the national level." He cupped the right with the fingers pointing down and brought it close to the left hand with the fingers pointing up. "It's a two-way system — from the bottom up, from the top down, intermingling, and all taking part in a learning experience, because participation is part of learning."

Dr Hellberg reported on a recent regional health conference that had been held in Nazaret, Ethiopia, which brought together health representatives from seven countries in east Africa. These were not merely ministers of health but representatives from all levels of the national health services — the village-level teams being represented as well as professional men and women from the capital and government authorities. What one saw at the Ethiopian conference, held 3 years after Alma-Ata, was proof of a more or less successful achievement of integrated primary health care systems in seven African countries. True, in certain cases there was some evidence of the old professional elitism, particularly in countries still dependent on expatriate doctors. But the direction appeared to have been set. The next stage had been embarked upon: the establishment of a consultative regional network, with the assistance of WHO and UNICEF. I was told that similar developments were evident among the francophone countries of Africa and countries of the Middle East.

Considering the magnitude of the problems and the external and internal obstacles to be overcome in bringing about basic environmental changes and developing human resources, the need for international assistance is very great. The responsibility for the planning and execution of the programs rested with the countries themselves beginning with the participants at the village level. But opportunities for support in training, formal and nonformal education, literacy, and equipment were challenging. Hellberg cited many examples of programs where WHO or UNICEF were executing agents or merely channels of cooperative assistance in which the financing had been undertaken not only by UNDP but out of bilateral funding by the Netherlands, Denmark, Sweden, or Germany.

It would be a mistake to view the encouraging gains in this world-wide movement toward the

impossible goal of "Health for All by the Year 2000" apart from the larger issues of social and economic development. In fact, a central feature of the primary health care approach is a recognition of the integrated relationship of the problem of health to the whole development process. Moreover, there are obstacles to success having to do with the distribution of resources, the holding of land, and the inequities in the international economic system that can only be overcome by action at the highest national level and with an as-yet-unachieved international accord. But these facts do not in any way negate the importance of a program and a process that involves ordinary people in their own communities in contributing to their liberation into a larger measure of healthy and creative living. Dr A. Moarefi, Chief of Health Education in WHO, addressed the All-Africa First Health Education Conference at Lagos, Nigeria, in September 1981. His theme was: "Some Considerations in the Health Education Component of Primary Health Care." The whole presentation deserves careful study but one paragraph warrants quotation:

> It should be realized that primary health care is not just another alternative in the provision of health care. It is a philosophy pointing to an approach based on the understanding that the individual, any individual, has the right and responsibility to be involved in matters regarding his well-being. It is founded on the assertion of dignity of every man and every woman regardless of their economic, social, or education status and on the acceptance of the fact that they are capable of taking proper decisions if other essential elements including education are properly met. They have the ability to be involved in the promotion of their health and the health of those close to them.

The Swedish Programs of International Development

SIDA

The bus driver stopped the bus at a cross street on Birger Jarisgatan and pointed across the road and said: "Sixty-one. SIDA." I thanked him and got out, crossed the street and walked along the front of a nondescript brown building. In the windows were pictures — landscapes, people, activities, obviously not Sweden in a brisk late winter day in February. They were scenes of hot countries — farmers in fields, women washing clothes in a river, doctors and nurses in a clinic, children in school. I went through the main door into the lobby. Facing the door was a desk with a receptionist. I gave my name and the name of the man who was expecting me. She dialed a number and she said a few words to the person who answered. She hung up and said to me: "Mr Sundgren will be down in a minute."

I looked around the big lobby. To the left on stands were blowups of photographs, woven mats and hangings, artifacts, all obviously from some part of Africa. A young bearded man sat relaxed in a big chair. "What's this," I asked. "It's an exhibit from Kenya," he said, "we've set it up for school children who will be visiting it today." "Have you been there?" I asked. "Yes, I've worked there for a couple of years." Because my mission with the Swedish International Development Authority (SIDA) concerned education, I felt that I had come to the right place.

This was more than confirmed by my talk with Lars Sundgren who was in charge of a program that we would call "development education." But that title hardly does it justice. SIDA refers to the activity as "internationalizing education" or, in even more high-sounding language, as "education toward the responsibilities of world citizenship." I go into this detail at the beginning of my story so as to suggest that this is much more than a kind of public relations effort to win popular support for the SIDA program of cooperation for development by eliciting interest in and sympathy for aid to the poor people in the Third World. The education that Lars Sundgren was promoting through the exhibition in the lobby, with the cooperation of the young man in the big chair, and through materials finding their way into the school curricula, was not too far removed from the education SIDA was supporting in developing countries. In both cases, education was a process in which you found your identity in your world and, as a participant with others, discovered a meaningful place for yourself in your world — a world that included those in the pictures in the exhibition and those who looked at them.

The more I talked with Lars Sundgren on this educational phenomenon in Sweden, the more I thought that it helped me understand a very special quality of the Swedish program of development cooperation. The understanding has been deepened by reports I have read since. To begin with, the educational activity sponsored by SIDA is in response to an eager demand for information about and involvement in the world community of which Swedish children are a part and that they share with other children in other countries, on other continents. Sundgren told me that there were certain weeks in the year when he would be away 3 out of 5 days meeting with teachers at their teacher training colleges or in their associations discussing how best to bring into the educational process the reality of

being a part of this larger world community. This kind of education goes far beyond the school curriculum. It means audio-visual presentation with full cooperation of the media, seminars and open discussions for teachers and students, and vacation trips to Third World countries and direct contact with people and institutions in developing countries. Out of this process comes a new sense of belonging in this emergent world community.

A very useful account of the philosophy and methodology of the educational activity we have been describing is to be found in a booklet written by Ingar Andersson and Lars Sundgren and published by SIDA with the title: "The Internationalization of Education." Its relevance extends far beyond a single Scandinavian country.

I learned from Sundgren that SIDA considers this program of education for international understanding sufficiently important to fund it in the amount of U.S.$4 million annually. Only part of the activity is carried out through the schools. Some U.S.$2.5 million goes to Sweden's nongovernmental organizations. There is no country in the world in which nongovernmental organizations, "*folkröreiser*" or "peoples' movements" as they are called, have done as much to shape the emergence of an egalitarian and democratic society and then to ensure that those same principles are manifested in the external affairs of the nation, particularly in its program of international cooperation for development. The best account of this phenomenon is to be found in a publication written for UNITAR by Ernst Michanek, Former Director of SIDA, entitled "Role of Swedish Non-Governmental Organizations in International Development Cooperation." The part played by NGOs in shaping Sweden's development cooperation policy is so important as to merit more detailed treatment and I have relied heavily on Michanek's work.

In 1973, at the time of the enactment of laws directed toward a large measure of constitutional reform, the Prime Minister, Olof Palme, said:

> The constitution is important. But let us not forget that the Swedish democratic tradition is a tradition of people's movements. The activities of the people's movements are not regulated by our constitution. They are associations of free men and women brought together by an ideology and by common ideals.
>
> The people's movements grew into instruments for the people to gain independence and freedom long before universal suffrage was obtained. People met in the cooperatives, in the labour movement, in the temperance movement, in the Christian congregations, with a view to joining forces for change and for an improvement of their lot. They found at an early stage that only by joining forces could they change the existing conditions. Solidarity became the strength of the weak, cooperation was their instrument. . . .
>
> The future strength of Swedish democracy is largely determined by the degree of vitality and power of action of the people's organizations and their ability to make men and women committed to the day to day work that gives substance to democracy.

The build-up of a Swedish international approach began with Sweden's close involvement in the League of Nations and the ILO, focused in the activities of Sweden's Prime Minister and great trade union leader, Hjalmar Branting. During the war, assistance to refugees was given more prominence by the organization of the Swedish Committee for Voluntary Aid, financed by the government but staffed largely by representatives of trade unions, employers, and religious and humanitarian organizations. At the end of the war, this effort to aid war victims expanded into what might be called a Swedish Marshall Plan to assist in the reconstruction of Europe; it preceded the U.S. effort and for several years drew financial support amounting to 2% of Sweden's GNP. From League of Nations days, the Swedish people had been particularly concerned by Italy's attack on and occupation of Ethiopia, partly because of missionary effort in that country but dramatically focused in the bombing of a Swedish ambulance unit. Sweden after the war lost no time in providing technical assistance to Ethiopia in the build-up of its military and civilian aviation, its judiciary, its telecommunications, and its schools.

Sweden became a member of the United Nations Economic and Social Council in 1951 and was active in the plans that led to the launching of the United Nations Expanded Program for Technical Assistance. But Sweden went about mobilizing its support in its typical Swedish way. The Secretary-General of the Foreign Ministry invited a number of important NGOs to discuss a coordinated Swedish aid program. Out of this meeting came the Central Committee for Swedish Technical Assistance to Less Developed Countries on which no less than 44 NGOs were represented. For 10 years from 1952 to 1962 it was the Central Committee that directed Sweden's international aid effort and mobilized Swedish public opinion in sympathetic and active support. In 1962, the government decided that the time had come for more direct official involvement in international cooperation and development. Again, an important group of NGOs was consulted and on its advice the official government development agency, SIDA, was formed. However, the

influence of the "peoples' movements" remained strong; they were well represented on SIDA's Board of Governors; they continued to be an important contributor to education in international understanding; and they continued with increasing support to carry out their grass-roots cooperation activities with their counterpart movements in developing countries. One cannot understand the importance and character of the Swedish program for international cooperation without taking into account the role of the NGOs in its origins and its continuing direction. That is also true of its diverse activities in support of education.

Bo Karre, Director of Information, had arranged that I meet several SIDA officers in the field of education who could discuss with me SIDA's present and future policy. I met them after my conversation with Lars Sundgren. They included Ingemar Gustafsson, Per Kokeritz and Birgitta Berggren from the Division of Education; Mats Kihlberg from SAREC, and Miss Munch, with special interest in primary health care and education. I had a profitable discussion with them lasting several hours.

In regard to SIDA's present and future education policy, a SIDA report prepared in 1980 contains a list of projects supported by SIDA in the period since 1975. The report refers to projects in eight African countries — Ethiopia, Kenya, Zambia, Tanzania, Botswana, Mozambique, Angola, and Guinea-Bissau — and two Asian countries, Bangladesh and Sri Lanka. The report suggests that the main areas have been primary education, adult education, and vocational training — and this is confirmed by a study of the listed projects. But there are also cases of support for secondary education, with an emphasis on the training of science teachers, and the provision of facilities for practical and technical subjects. Most of the financial assistance went toward the construction of buildings and the supply of equipment. Instructors in the field of vocational training and advisors in the fields of adult education and literacy constituted the main elements in the provision of technical assistance. SIDA provided financial support for paper and books in several instances in connection with programs of adult education and literacy.

Conversations with SIDA staff members brought out the different priorities in different country programs. In Botswana and Zambia, for instance, there was a strong movement to increase secondary schooling. In Zambia, Botswana, and Zimbabwe the strengthening of teachers training colleges was stressed. The Swedish Agency for Research Cooperation with Developing Countries (SAREC), has also expressed an interest in supporting the linkages between the Swedish University of Lundu and the University of Dar es Salaam and between the University of Lulea and the Faculty of Mining in the University of Zambia.

Many of the educational activities receiving SIDA support that were not covered in the listed projects and programs were more directly associated with economic and social development. Examples were to be found in the activity of cooperatives, in the role of agricultural extension workers, in the primary health care programs that we had discussed at some length in WHO. Miss Munch told me what we had heard from Dr Hellberg that SIDA gave support to a number of such programs in which WHO was the executing agent and that comprised many components of training and integrated nonformal education. There was another area of SIDA's development support activities into which invariably a training program was built: this was the financing of capital infrastructure, the big paper mill at Baibong in Vietnam, for instance, where the training of operational and maintenance workers was considered as equally important with the construction and the installation of the equipment.

Then, of course, the NGOs contribution. Fifty percent of their activity was devoted to education, 30% to health of which much might be described as educational. Here the emphasis tends to be on rural education and education for usually disadvantaged sectors of the community: rural primary schools in Bangladesh, health services for Indians in Peru, a vocational school for blind girls in Tanzania, mother and child care in Cape Verde, training in the management of cooperatives in many countries, and training for women in home industries in Nairobi. SIDA's support for NGO activity has increased from some U.S.$22 million in the year 1979–80 to U.S.$38 million in 1982–83. The total expenditure including the NGO contribution will put the amount this year up to some U.S.$120 million.

SAREC

A comparatively new contribution of Sweden to the educational capabilities of developing countries is to be found in the Swedish Agency for Research Cooperation with Developing Countries (SAREC). Modeled on the IDRC, SAREC was established in 1975 with its main objective "to support developing countries in their endeavours to create and strengthen endogenous research capacities."

Like IDRC, SAREC is itself not a research institution but rather a funding organization for researchers and research institutes, the activities of

which have a direct bearing on problems faced by developing countries. There are main categories of research activities that receive support from SAREC: (a) direct research cooperation with developing countries; (b) research cooperation between developing countries and s'ecial research programs; (c) international research programs, usually with an institutional base; and (d) Swedish development research.

The countries with which SAREC is supporting research cooperation are, with one or two exceptions, the same as those in which SIDA is supporting educational development. The type of research and the projects selected for support correspond to the expressed wishes of the developing countries concerned. In cases where the research base in the country appears to be adequate to the task, the necessary financial support will be given. In other cases, cooperative support may be facilitated between an institution in the Third World country and a Swedish research institution or university with relevant resources. In Ethiopia, for example, a highly important study of local flora will bring together researchers from Addis Ababa University and the Institute of Systemic Botany at Uppsala University. Concern for increased production and more efficient use of oil seeds in India has led to a research program involving the Department of Science and Technology of the Government of India and SAREC to be carried out by a network of Indian and Swedish research institutions. The dependency of the nomads of Somalia on the lowly but omnipresent camel has at least occasioned a comprehensive research project too long neglected. The project will bring together researchers from the Faculties of Agriculture, Industrial Chemistry, and Veterinary Sciences of the Somali National University of Agriculture and from the Department of Social Anthropology of the University of Stockholm.

The second program of research support provides funding for research cooperation between developing countries. In practice, this means supporting regional research organizations such as the Council for the Development of Economic and Social Research in Africa (CODESRIA) and the Consejo Latinoamericano de Ciencias Sociales (CLACSO) in Latin America. But it also means supporting certain international seminars and certain joint projects that bring together Third World researchers.

The third object of SAREC support is the group of important international research centres and programs. The Consultative Group on International Agriculture Research (CGIAR) commands the most support in this category with core support for a number of specialized international research institutes such as the International Rice Research Institute (IRRI), Centro Internacional de Mejoramiento de Maíz y Trigo (CIMMYT), International Crops Research Institute for the Semi-Arid Tropics (ICRISAT), and Centro Internacional de Agricultura Tropical (CIAT). Another group of international research programs is sponsored by WHO in such fields as human reproduction, primary health care, and tropical diseases. Another object of support is the International Foundation of Science, a nongovernmental organization based on scientific research councils in 53 countries. It is located in Stockholm and also receives support from IDRC.

Finally, SAREC contributes a small amount to Swedish universities and other research institutes to support projects with a direct relation to development. Fields covered include development theory and social science, technology and industrialization, agriculture and rural development, health and nutrition, and education and communications. SAREC's objective is to help developing countries strengthen their research capabilities, and it is hoped that the "Swedish program" will contribute to this goal, creating stronger links between SAREC and the Swedish research community. Sweden's support of development research through SAREC cannot be seen in entire isolation from its support of education in many forms in the developing world. SAREC's Annual Report for the year 1980–81 puts it this way:

> Researchers and research institutions are only the top of the pyramid, the basis of which includes education at different levels, organizations to develop national research policy and technicians and workers capable of making use of research results. A policy which aims at developing research capacity has to be seen as an integrated part of social development. In a wider perspective this policy touches on the very foundations of culture and its relations to technological change.

On the basis of the evidence we have reviewed, how do we assess Sweden's policy toward its present and continuing support in developing countries? In purely quantitative terms, it would seem that support of education is firmly locked into SIDA's general program of development assistance and that that program among other national programs is comparatively large and is increasing. With strong popular support the Swedish Parliament some years ago targeted its development assistance budget on a goal equal to 1% of its GNP. That goal was reached several years ago and is being maintained if not exceeded. Four years ago SIDA's appropriation amounted to 4419 million Swedish kroner. The budget this year, 1981–82, is

5720 million kroner. The 1982–83 estimated budget is 6228 million kroner or about $1245 million (Canadian).

The listed education budget in the bilateral program appears to be remaining fairly constant at about 8%. But, as we have seen, this by no means accounts for all the support that SIDA is providing for education. We must consider the contribution of the NGOs, their appropriations increasing more rapidly than the over-all appropriations. We must consider other programs with educational components and the multilateral programs, such as those of WHO, ILO, and UNESCO, to which SIDA is giving support. Finally, there is SAREC, the budget of which was CA$25 million in 1980–81 and will be CA$30 million in 1982–83. From the purely quantitative point of view, things look good for continuing if not increasing support for education in the Swedish development cooperation programs. However, we would not be doing the Swedish program justice if we did not take into account some qualitative considerations. We must recall, once more, the role of Sweden's NGOs, the peoples' movements, in their shaping of Sweden's democracy and its projection into its international programs of development cooperation.

In 1978, the Swedish Parliament adopted a bill that established a frame of reference within which Sweden's development assistance should be planned and executed. The overall guidelines call for solidarity with poor countries and people in need. In keeping with these, the Swedish program would contribute to: (a) economic growth with maintained ecological balance, (b) economic and social justice, (c) economic and political independence, and (d) strengthening of democracy.

In support of these goals, the appropriations for development aid should remain above 1% of GNP. Swedish assistance should be directed to low-income countries and be used to improve the living conditions of poor people. Resources should be extended for the most part through grant aid, and Sweden should retain its policy of untied aid and continue strong support for multilateral programs.

At first glance such goals sound rhetorical and idealistic. But consider the record: the 1% of GNP target has been sustained and surpassed; the 20-odd countries in which SIDA's program is concentrated are among the poorest in the Third World; in the entire SIDA program, tied aid does not exceed 15%; and contributions to multilateral programs, mostly through United Nations agencies and regional development banks, stays somewhere in the neighbourhood of 33%.

With the emphasis on support for increasing self-reliance, increasing economic and social justice, and meeting basic needs, one would imagine that the priorities in the selection of programs as well as in the designing of programs are increasingly the responsibility of the Third World countries. There may be a prolonged period of dialogue between SIDA and Third World country authorities but, as Ola Ullsten, Sweden's Minister of Development before he became Prime Minister said:

> . . .in the final analysis it is the developing countries which control what uses they wish to make of the Swedish resources. No Swedish flags fly over the projects we support. We contribute to efforts to which developing countries themselves give priority in their development plans and for which they bear the full responsibility.

Such a statement when read alongside of the actual evolution of Sweden's program of development assistance, confirms the growing conviction that Sweden has moved far from the traditional concept of a donor–recipient relationship to one of full and equal cooperation. Moreover, the emphasis on the meeting of basic needs, a deep concern for environmental conservation, the special concern for the improvement in the status of women, all finding expression in actual programs, represent a growing consensus that human goals are central in development policy. This in turn reinforces a belief that the Swedish international program is not only a projection into international relations of social and democratic principles realized in national society, but also a continuing involvement of the Swedish people in a combined effort to achieve an equitable and democratic world community.

The Dag Hammarskjold Foundation

I met Sven Hamrell on the station platform at Uppsala. I was to have come by train and over the phone he had said: "You will recognize me: I shall be wearing a green coat and a green hat and I am very fat." In the meantime, Swedish friends kindly offered to drive us the 75 km to Uppsala and I was delivered safely to the railway station, while our friends took my wife and a Canadian friend to explore the old city dominated by the cathedral and the red castle on the hill.

I had no difficulty recognizing Sven Hamrell although he was not very fat and most Swedes seemed to be wearing green coats and hats on that wintry morning. Hamrell drove me to the Dag Hammarskjold Foundation office in an old mansion on the grounds of the 500-year old Uppsala University. The Foundation was established to honour Dag Hammarskjold in 1962, the year after his death. In 1965 it found a permanent home in

Uppsala in the house once occupied by the Swedish philosopher and poet, Erik Gustaf Geijer. It is on a road not far from the castle along which Dag Hammarskjold used to walk each day on his way to school and then to the university.

The Dag Hammarskjold Foundation was set up to focus serious discussion on the critical problems of a world that had outgrown the patterns and policies of the nation state but had not yet created the institutions and practices necessary to serve the needs of a world community. The discussion was not to be confined to academic deliberations, although high-level scholarship was called for. Nor was it to become a vehicle for ideological propaganda, although the suffering and injustice in the existing order encouraged bitter protest. It was to operate, as two members of the Board of Trustees described it, "on an interface between research and politics." The research would be respectable, as its presence on Uppsala campus implied, but the research, and the deliberations based on it, would result in political action directed to the achievement of a new international order.

Between 1966 and 1981, the Dag Hammarskjold Foundation sponsored more than 60 seminars and conferences. More than half of them were held in Uppsala and some 20 in the Third World, the majority in Africa but others in Latin America, the Caribbean, and the Pacific. Discussions centred for the most part on problems of international cooperation and development, frequently with specific regional emphasis. Eight seminars had to do with education in developing countries.

Changes taking place in the Third World and in the relationships between Third World countries and developed countries — highlighted by the solidarity of the Group of 77 at the first United Nations Conference on Trade and Development (UNCTAD) conference in 1964 and the confrontation that came out of the oil crisis in 1973 — seemed to call for radical reassessment of the international situation. It was at this point that the Dag Hammarskjold Foundation took the initiative in bringing together a broadly representative group of research scholars, political leaders, and international officials to formulate a new concept of development directed toward human rather than economic goals and map out strategy for their attainment. This was presented in a striking publication, "What Now: Another Development." It appeared in 1975 on the eve of the Seventh United Nations Special Assembly on Development out of which came the challenge of a New International Order.

The Foundation carries out an active program of publication, much of the material drawn from the seminars and conferences. Its journal, "Development Dialogue," which appears twice a year, is probably one of the most stimulating and provocative journals in the field. It has carried many articles on education in relation to development, the second issue of 1978 being entirely devoted to the subject. As a working paper for a seminar on education in Dar es Salaam in 1974, the Foundation asked Patrick Van Rensburg to put together a selection of his writings on education and employment in an African country. It was published under the title "Report from Swaneng Hill." Papers by Julius Nyerere, Joseph Ki-Zerba, and Asfaw Yemirru from the seminar are carried in "Development Dialogue," the second issue of 1974, which also carries the interesting conclusions that were arrived at.

Although it may seem relevant to this study that the Dag Hammarskjold Foundation has made particular contributions to educational research and discussion, what is much more important is that it is constantly throwing new light on social and cultural situations within which education is to be seen as a factor in development, all of which must be viewed within a global context that demands radical reconstruction. The Dag Hammarskjold Foundation then must be regarded as part of a particularly Swedish approach that finds expression as well in SIDA and SAREC but that also embodies the thought and concern of the Swedish people.

There is something else that is particularly Swedish about the Dag Hammarskjold Foundation; in terms of staff it is very small. There are only four or five people to direct their extensive activities of seminars and publications. Of course, there is an impressive Board of Trustees that includes the Vice-Chancellor of the University and the former Director of CIDA as well as the Minister of Economic Planning and Development of Zimbabwe, the Minister of Finance of Tanzania, and an Undersecretary-General of the United Nations. Equally impressive is a very distinguished Honorary Advisory Committee of 22, of which 12 are from Third World countries. Most especially, it gains a certain vitality from being based in Uppsala, the home university of Dag Hammarskjold, the resources of which it can constantly draw on.

Sven Hamrell and I talked for an hour or so in his office in Geijersgarden. As the conversation roamed over various topics, he kept pulling out publications with relevant articles or ones descriptive of the work of the Foundation. The final one was a slim blue booklet inscribed: Dag Hammarskjold — Castle Hill. It was the last thing that he had written, just before he left for Africa on his

final mission. It is a simple reminiscence, detailed, a little sentimental, of the progress of the seasons and the activities associated with them as viewed from the castle, which was his home, just out there across the road.

We went out to lunch to a restaurant that resembled the crypt of an old church. Hamrell explained that it had been the wine cellar of the archbishop several centuries ago. Most of the others having their lunch were professors from the university. We seemed a long way from Stockholm, from Europe, and certainly from the Third World. But not from Hammarskjold. I recalled that flight I took with him the Christmas of 1957 from Cairo to Gaza when he had just come from Stockholm where he had delivered the lecture to the Swedish Academy on "The Linnaeus Tradition and Our Time." Linnaeus had been a professor of Uppsala University. Hammarskjold gave me a copy of his lecture. And I remembered the passage that caught my attention:

> Only those who do not want to see can deny that we are moving these days in the direction of a new community of nations, however far we may be from its full realization, however often we may seem to have chosen the wrong path, however numerous the setbacks and disappointments have been. Could it be otherwise when no other road appears open out of the dangers a new era has created?

After lunch, Hamrell and I drove over to the cemetery where we met our Swedish friends with my wife and friend. We made our way toward a large stone that marked the grave of Hammarskjold's father. Dag Hammarskjold's grave was next to it. Hamrell said it was marked by a simple brass plate with an appropriate inscription. Now it was covered with snow. We stood for a few minutes beside it. On the snow was a bunch of yellow daffodils.

The Commonwealth Connection

What struck me when I arrived in England and began to make the rounds of old friends and colleagues on the educational network was the deep concern over the savage cuts on university funding ordered by the government. Not only did these mean curtailment of academic programs and staff — Sussex faced a likelihood of 200 layoffs — but the policy seemed dangerously short-sighted in terms of Britain's future. Moreover, the cuts appeared arbitrary; Bradford, one of the new red-brick universities with a strong emphasis on technology, was said to be required to cut back by 40%.

Nor was the protest confined to educational circles. The media were picking it up. A late television broadcast on March 3 was carried live from Stirling where the university — the first "new" university in Scotland in 400 years — faced a cutback of 27%. The whole community — the public, students, professors, the Vice-Chancellor, the distinguished Chancellor himself — were expressing their outrage in a very direct, articulate Scottish way.

The policy, naturally, has had a direct bearing on the government's and the universities' international programs of educational assistance and cooperation. A case in point is the fate of the Inter-University Council for Higher Education Overseas (IUC). Established in 1946 by the British universities, with government support, it did an extraordinarily effective job in relating the resources of British universities to the needs in higher education of the emerging nations of the postwar Commonwealth. In some measure the IUC resembled NUFFIC of the Netherlands in its historical origins; in each case there was surfeit of high-grade scientists, scholars, and educators as an empire came to a close. However, in the British case, there was an ongoing Commonwealth and the beginnings of educational linkages with British universities. Flexible and responsive, with a minimum of administration bureaucracy, the IUC made an impressive contribution to the growth of the new universities and at the same time, because it was an instrument of the British university community, mobilized the commitment of British universities to a larger international responsibility. On the basis of carefully prepared budgets, annual funding was made available by the Ministry of Overseas Development, to the small and efficient administration of the IUC. As in the case of NUFFIC, the pattern of support and cooperation appeared to be determined by the priorities of universities in the Third World, which in turn reflected a perception of development needs.

In a sense, the priorities on which the IUC operated and its large degree of independence from government control left it particularly vulnerable in a period when university funding was being severely curtailed and when international cooperation was paying special concern to the promotion of British interests. To quote a government statement on aid policy dated 20 February 1980: "It is right at the present time to give greater weight in the allocation of our Aid to political, industrial and commercial considerations along-side our basic development objective." There was another important factor, the activities of the IUC were focused on institutions of higher education in

Africa and to some extent in the Caribbean. The universities in India, on the other hand, were being assisted through a cultural organization of the government known as the British Council, established in 1934, financed by the Foreign and Commonwealth Office and the Ministry of Overseas Development, with a staff in Britain and abroad of over 4000. In a handbook of Commonwealth Organizations its aim is defined: ". . .to promote a wider knowledge of Britain and of the English language abroad, and to develop close cultural relations between Britain and other countries."

The case was presented, therefore, to abolish the IUC and transfer its responsibilities and its functions to the British Council. In this way, economies would be effected and interuniversity cooperation brought directly under the control of an organ of the government, tied closely to British foreign policy and with considerable experience in the field of educational support. In 1981, the action was taken — the IUC was abolished and the British Council was in full charge.

A study of the British program of aid to education reveals that a good many sectors are administered by the British Council and funded by the Overseas Development Administration: the Key English Language Teaching Program (KELT) for which some 150 specialists are recruited, in-training service courses for teachers, several sections of the books supply program, specialist advice on the use of radio and television technology in teaching, university support and inter-university cooperation formerly under the IUC, and advisory and operational support in technical education, industrial training, public administration, and agricultural education and training, formerly under an organization known as the Technical Education and Training Organisation for Overseas Countries (TETOC). In addition, the British Council supervises the British Volunteer Program (BVP), coordinating the work of four independent voluntary societies and joint funding projects in several areas of nonformal education.

The British Council, in fact, has a wide range of responsibility as shown in a recent paper on British Aid to Education, prepared by the Education Division of ODA:

> An important role that the British Council plays in the British Aid program is the provision of advice to ODA and British diplomatic missions on educational matters generally in the developing world, carrying out this function in parallel with its function as a centre of information for overseas countries about British life and culture. This latter role is recognized by the funding arrangements for the Council's 'mixed money' under which the FCO and ODA each pay a proportion of the Council's core budget, respectively some 64% and 36%. In the case of the aid-receiving countries, however, by far the larger share of the cost, which may be as high as 90%, is borne by ODA.

Conversations with representatives of the Education Divison of ODA and with the British Council's Committee for International Cooperation in Higher Education left me in some doubt as to how well the new arrangement was going to work out. On the one hand, much stress was laid on the fact that the former IUC budget was intact, or nearly so, and that it was protected against any infringement from the country-program requirements of the main ODA program. The declaratory guidelines bore a close resemblance to those of the IUC. At the same time, it appeared that present arrangements amounted to the completion of commitments and programs already in progress. It was not at all clear what was going to happen next year or the year after. Certainly, the free input from British universities and their linked sister universities in developing countries seemed to be regarded as a luxury under the new arrangements. There was not much discussion about the central goal of educational cooperation being to strengthen the capabilities and promote the self-reliance of the Third World participants.

Among many who had been closely associated with the work of the IUC during its distinguished history this last point caused deep concern. For them it appeared to be a retrogressive step. For the encouragement of university initiative and flexible response one might anticipate a studied adherence to policy guidelines. The priorities of needs arising in developing countries were not so clearly the determining factors in day-to-day decisions; they would have to be carefully weighed against economic and political considerations. But in fairness, the new arrangements have been in effect only a year and one must give them a chance to serve the educational goals they are intended to serve.

There is one important organization whose aims and activities bear a close resemblance to those of the IUC. That is the Association of Commonwealth Universities (ACU). Its aims are: "To promote, in practical ways, contact and cooperation between the universities of the Commonwealth." The Association is made up of 221 member universities in 28 Commonwealth countries. For many years, its distinguished Secretary-General was Sir Hugh Springer of Barbados, former Vice-Chancellor of

the University of the West Indies. He was succeeded in 1981 by Dr Anastasius Christodoulou, formerly Secretary of the Open University.

The ACU plays a network role in the Commonwealth university community, acting as a clearing house of information, promoting the movement of students and professors, making information generally available on centres of excellence, admission standards, awards, etc. It holds quinquennial conferences — the last at the University of British Columbia in Vancouver in 1978, the next in Birmingham in 1983 — where issues having to do with the university's role in a world undergoing radical change are discussed. It publishes a Commonwealth Universities Yearbook and a regularly updated Register of Research Strengths in Universities of Developing Countries of the Commonwealth. It also provides the secretariat for the Commonwealth Scholarship Commission that administers the British portion of the Commonwealth Scholarship and Fellowship Plan in collaboration with the British Council.

The Commonwealth Scholarship and Fellowship Plan was established in 1959 by the First Commonwealth Education Conference that was held in Oxford. The scheme was intended to make it possible for students of ability and promise to attend postgraduate study in Commonwealth countries other than their own and for a few outstanding scholars to take up visiting Professorships or Fellowships, usually in response to invitations. Some 15 countries offer scholarships. The number of scholarships has remained at about 1000 a year. It has been generally regarded as one of the most successful contributions to the development of higher education in Commonwealth countries as well as to their professional leadership. In London an evaluation committee drawn from a broad and representative group of educators conducted a decennial review of the program, and there was almost universal enthusiasm in regard to the program and little to indicate that any important suggestions for modification or improvement were being brought forward.

This brief study of these two institutions, the ACU and the Commonwealth Scholarship and Fellowship Program, tempts one to probe deeper into the complex of organizations and activities that usually carry the prefix "Commonwealth" and somehow or other fall under the aegis of the Commonwealth Secretariat. But if we do so, it is necessary to put out a clear warning that if one finds difficulty in sketching a clear picture of the Commonwealth, which I consider to be one of the most important phenomena in the international scene today, one will find similar difficulty in giving a tidy description of an interconnected group of institutions and activities that together may be making one of the really serious contributions to education in developing countries.

The Commonwealth Secretariat was established in 1965 as an international body at the service of and responsible to all 40 member countries of the Commonwealth. An official statement of its aims reads: "To facilitate joint consultation and cooperation between member countries; to collect and disseminate information for their use; to organize meetings and conferences in areas of common concern and to put into effect decisions for collective Commonwealth action." On a number of occasions, it has demonstrated a capacity for bringing about a remarkable degree of political unity in divisive situations. One such instance was the Commonwealth Heads of Government meeting in Jamaica in 1975 when a large measure of unanimity was achieved on the concept of a New International Economic Order just prior to the Special Session on the U.N. General Assembly. Another even more dramatic instance in which the Commonwealth Secretariat played an important part was in negotiations that led to the establishment of Zimbabwe as an independent state. Most of its success, however, has been in the maintenance of an open and intelligible network of communications among members, so that members from the North and members from the South, left-leaning members and right-leaning members can maintain a civilized and constructive dialogue. In our contemporary world, that is quite an achievement. The dialogue may reflect genuine concern, but it may also reflect innovative departures that, with adequate support, can lead to significant economic and social advance. Perhaps most of all it represents an abandonment of the concept of dependency arising from the old colonial relationship or from a transformation of that relationship into one of generous giver and grateful receiver. In the relationship, integrated through the Commonwealth Secretariat, human dignity is preserved in the cooperative effort to attain a better life for the people of the member countries.

In the support of educational development in the developing countries of the Commonwealth there are two sectors in the Secretariat that are making a significant contribution. The first is the Education Division. It would be misleading to talk about the "program" of the Education Division. Programs are not drafted for Commonwealth countries in the faded imperial splendour of Marlborough House. Rather they are put together in the classrooms and school boards and teachers' associations and vocational training centres and ministries of educa-

tion and health and agriculture in 40 member countries. At best, and it is a very important best, the Education Division of the Commonwealth Secretariat can contribute to the environment in which programs are planned and critical decisions taken.

Take the question of the teaching of science and mathematics in the schools, a question, as we saw, UNESCO is very much interested in. One of the serious issues is the high cost of science equipment, most of which has to be imported. Three successful regional workshops were held in the Bahamas (1976), Tanzania (1977), and Papua New Guinea (1979) on the production of low-cost equipment. Following a lengthy discussion at the eighth triennial Commonwealth Education Conference in Sri Lanka in 1980, with a number of suggestions as to various forms of logistic support the Commonwealth Secretariat might provide, a regional meeting was held in Suva, Fiji, in April/May 1981 "to examine the feasibility of establishing a science equipment production centre for the South Pacific." At this meeting, it should be noted, not only governments but regional and international organizations were represented.

Another example of the contribution of the Education Division of the Secretariat is in that basic problem area of educational development, book production. To some extent the emergence of the problem reflects the constructive move to new curricula relevant to the cultural, social, and economic needs of a particular country. But it goes beyond this in the growing recognition that an efficient and successful book industry is an important element in the achievement of self-reliance. The obstacle is the lack of knowledge, skill, and training facilities in all departments of the publishing process. Pressure from Commonwealth members for assistance to overcome these obstacles has resulted in the formation of a Commonwealth Book Development Program. A meeting of Commonwealth experts was held in London in 1975 to identify sectors in the book industry where training was badly needed and produced some syllabuses that might be useful in teaching the needed skills. Two years later in Guyana the Secretariat sponsored a highly practical training course for the Caribbean region and is being urged to set up other regional training courses. It is also assisting in the development of book production through the provision of experts through the Commonwealth Fund for Technical Cooperation (CFTC) and giving financial assistance for attendance at established national and international training centres and attachment to book industries in developed countries. This assistance, unfortunately, is severely limited by shortage of funds in CFTC.

In a closely related field, attention is being given to the training of nonprofessional library staff in collaboration with the Commonwealth Library Association. A meeting of Commonwealth library experts was held in Fiji in 1979 to identify the skills needed in this field, and out of this meeting came training modules that will be tested out in a pilot edition before being revised for publication and made generally available. The Education Division has produced a "Handbook for Teacher Librarians" "to help teacher-librarians with no previous experience to organize their libraries and use them to support the educational work of the schools in which they work." As a means of promoting the distribution of books within the Commonwealth the Secretariat has published a directory of Commonwealth national bibliographies that will be kept updated.

These are but two of many areas in which the Education Division of the Commonwealth Secretariat is involved, not so much in initiating and implementing programs but in responding to initiatives taken and requests for cooperative support put forward individually or, more often, collectively in regional workshops or seminars or in the general conclave of the Commonwealth Education Conference. Similar examples could be cited in such fields as technical and vocational education and training, nonformal and adult education, education for women, teacher education, and educational administration.

I have already referred to the CFTC. Alongside of a General Technical Assistance Division, which provides specialists to work in a country requiring assistance, there is an Education and Training Division that provides funding for the training of nationals. One very important aspect of this training-support program is its close tie-in with no less than 10 regional training centres located in various parts of the Commonwealth. For example, it has supported in the past 2 years 111 technicians from Botswana, Lesotho, and Swaziland at the Multi-Country Telecommunications Centre in Malawi. It has sponsored 200 trainees at the Agricultural Management Centre in Swaziland and 168 technical education planners and administrators at the Colombo Plan Staff College in Singapore and 394 teachers of French from The Gambia, Ghana, and Sierra Leone have received training at 6-week summer schools held in the Village du Bénin in Lomé, Togo. More specialized training in such fields as seriology, animal husbandry, cartography, soil conservation, management of cooperatives, and training of the deaf has also been made available in Commonwealth institutions. The result

has been not only more trained people but a strengthening of the educational and training centres that mean so much to a country's development and to the level of science within the whole Commonwealth.

It seems extraordinary that the tangible and highly relevant contributions being made to educational development within Commonwealth countries with the support of the Education Division and the Education and Training Division of the CFTC are being curtailed through lack of funding. The amounts involved seem incredibly small in the light of the resources of Commonwealth nations and the amounts they are making available to bilateral programs of international development and to other multilateral programs. The annual regular budget of the Secretariat is £3.25 million (as of 1982, £1 = U.S.$1.72) and the pledged contributions in 1980/81 to the CFTC amounted to £9.38 million. This was £2 million less than the level of expenditure in 1978/79. There are indications that some recovery will be made this year. But considering that the Commonwealth's 40 nations include about one-third of the world's people, that it enjoys a common language of communication, that it has achieved a remarkable record of political and economic cooperation associated with a high respect for national self-reliance, and that in a wide range of educational endeavours it has shown commitment, social realism, and innovation, it is very strange that member states and other donor agencies do not leap at the chance of adding to this meager budget.

The Eighth Commonwealth Education Conference Report, on which we have already drawn, merits careful study. In its analysis and recommendations it reveals remarkable unanimity on some of the most urgent issues in educational policy. Universities must be more aware of their responsibilities to the needs of the countries in which they are placed; higher education must assume much more of the burden of developing the science and technology necessary for development. At the primary level and going on to the secondary and tertiary, it is an urgent necessity to give much greater attention to the education and training of women and to insist on equal employment opportunities and greater attention to nonformal education in relation to rural development. In these and other fields, the resources of the Commonwealth and its Secretariat should be drawn on. Much dismay was registered over the discriminatory fees now fixed for overseas students by certain developed countries. The practice was having a serious effect on essential training and student mobility. An attempt should be made to have the discrimination lifted for certain categories of scholarships, find more scholarship money but also, for the longer term, strengthen the academic standing of other Commonwealth universities so as to add to collective self-reliance.

One notable characteristic of the Commonwealth is that it constitutes an environment and a climate within which groups and associations of like purpose come together and thrive. There are a great many. Two are worthy of special mention. The Commonwealth Foundation was established in 1966 to promote closer professional cooperation within the Commonwealth. It provides financial assistance to some 21 Commonwealth professional organizations and 16 professional centres. In a number of professional fields it offers support for continuing study and research and widening of professional experience. The Commonwealth Science Council (CSC) is composed of 29 countries and is devoted to the promotion of scientific and technological cooperation and a particular concern for efforts to increase the capabilities of member nations to use science and technology for their economic, social, and environmental development.

The topic for the Eighth Commonwealth Education Conference was "Education and the Development of Human Resources." It is evident that the process referred to was more than the careful application of an attractive veneer or even the care and nurture of a sensitive plant by knowledgable gardeners. It was rather a participatory process, drawing mutually on human resources, developing new resources through the mutual experience. The Commonwealth Foundation and the CSC are contributors to the development of human resources through education but they share in the process of participation.

Other centres of research, learning, and scientific expertise also share in the process of participation. They are to be found throughout the Commonwealth but partly, I suppose, for the same reasons that apply in the Netherlands, have an impressive concentration in Britain. Queen Elizabeth House, for instance, was founded in Oxford as early as 1954 as a study centre focused chiefly on Commonwealth studies. But in 1968–69 its scope was broadened to include extensive research in development economics with a global application.

The Institute of Development Studies (IDS) at the University of Sussex came into existence in 1966 with financing from the ODA. Research has been at the core of its program and it has made a substantial contribution to development theory. It has sponsored seminars in specialized fields that have brought together government officials from developing countries. A characteristic of its activities has been that much of its research has

been closely related to actual problems, and its permanent staff and research fellows have been actively involved in association with international agencies and governments of developing countries on cooperative assignments. An important contribution has been the biennial publication of research projects in British universities linked to a unique seminar conference at which all the projects come under discussion. In association with the University of Sussex it conducts a M.Phil course in development economics. A key to the excellence of the Institute is a development sciences library that is probably unmatched in the world.

The Overseas Development Institute (ODI) in London has been active since 1960. Its chief focus is research with an emphasis on development policies. But like its counterpart in Washington, the Overseas Development Council (ODC), it is vitally concerned in furthering the public understanding of and involvement in development cooperation programs. Recently, under the guidance of a European editorial board of distinguished development economists, it has combined forces with the IDS to produce an annual survey on the European Economic Community and the Third World. The first issue appeared about a year ago: the second survey entitled "Hunger in the World" is just appearing. Since 1975, under an Agricultural Administration Unit, it has been conducting an active research program on agricultural problems and policies and publishing the results.

There is also a new and important centre, the International Institute for Environment and Development (IIED). Originally called the International Institute for Environmental Affairs under the sponsorship of the Aspen Institute for Humanistic Studies of Colorado, it had been active in the preparations for the 1972 U.N. Conference on the Environment held in Stockholm. The Institute contributed much of the staff work for the publication of the book by Barbara Ward and René Dubos, "Only One Earth." As a follow-up to Stockholm it was decided to strengthen the Institute and Barbara Ward was asked to become President. She accepted on the condition that the name be changed to include "Environment," because one could not approach development without consideration for the environment in which people lived and moved and had their being. Nor could one consider environment and its use and conservation unless one considered the imperatives of development.

The IIED would consider itself an educational institution even more than a research institution, although research is involved. Education represents an integrated approach such as we have encountered very often in this review. The educational emphasis, for example, put forward by Dr Hellberg in his exposition of WHO's concept of primary health care, is completely in line with the thinking of the Institute. It is a knowledge of the integrated environmental factors in a community and the application of that knowledge that provides the basis of health. A pamphlet entitled "Energy Policy for the Rural Third World," written by Arjun Makhijani and published by IIED says little or nothing about oil or hydroelectricity or nuclear power, but it tells a great deal about the efficient utilization and conservation of the relevant energy resources in the village — water, food, fuel from the forest, and the need for wisdom in harvesting gas from vegetable and animal waste, efficiency of stoves, energy from the wind and the sun. All of these are related to an increase of knowledge, changed practice, the strengthening of local institutions.

There are other centres and institutes that I might mention. But what has been described is probably enough to illustrate the importance of a partnership in development, which within the Commonwealth and extending beyond includes input, and output, at the grass-roots level but also at the highest level of scientific research.

CIDA and IDRC

The Canadian International Development Agency (CIDA)

My task in this brief chapter is to give a description of CIDA's policy and practice in regard to support of educational development in the countries within the scope of its programs of international cooperation for development and give some kind of a judgment as to what the policy and practice is likely to be during the remainder of this decade. If my description and judgment are to have any meaning they must be made within the context of important changes in the international system, changes in Canadian policy, and changes in the very philosophy of development. It is not an easy task.

To begin with a short background sketch: the Canadian aid program, as it was called, was a postwar phenomenon. It was conceived at San Francisco when the Canadian delegation to the founding United Nations conference pressed for increased status for the Economic and Social Council in the Charter that was being drafted, because of a firm belief that international economic cooperation aimed at improving the standard of living in the world's poor countries would be an

important contribution to peace. The Canadian government took heart from the results of the Marshall Plan, responded favourably to President Truman's challenge to a world-wide international assistance program that he outlined in an address to Congress in January 1949, and found an immediate object for its own bilateral aid program in the Colombo Plan to give assistance to the group of newly independent Commonwealth nations in South and Southeast Asia after the end of British rule over India, Pakistan, Ceylon, and Burma. The plan was extended to include other nations in Southeast Asia as they gained their independence.

The main objectives in both the Marshall and Truman plans, and they applied as well to the Canadian efforts, were: repair the war devastation suffered by countries and their people in Europe and in other parts of the world; in so doing, strengthen a barrier against the spread of communism; and provide a market for the glut of products produced by industries, undamaged by war and, in fact, enlarged through serving war needs. These foreign-policy objectives were reinforced by a spirit of postwar internationalism that expressed itself in a determination to enhance international understanding by charitable giving.

Added to these motivations was a simple faith in a technocratic approach to what came to be known as "development." Just as battered and suffering Europe was being restored to robust health by the infusion of money and machinery and building and expertise provided by the Marshall Plan so the primitive, in some cases war-damaged, and in all cases poverty-stricken countries of South and Southeast Asia could be given the advantages of our advanced industrial civilization by a sufficient infusion of Western capital, equipment, and know-how. With sufficient technological help they would take off and fly on their own. It was such a faith that dominated most international assistance through the 1960s. Associated with such a faith was a firm belief in education — beginning with literacy and going on to the highest level of university scholarly attainment. Education provided the trained workforce by which the modern world could be created and maintained. The educated were those who would partake fully of the benefits of the new world.

Canada contributed to the United Nations Expanded Program of Technical Assistance, which was set up in response to Truman's Point Four challenge. Its own participation in the Colombo Plan, which was a coordinated complex of bilateral programs, was administered under a loose interdepartmental grouping recruited from Industry Trade and Commerce and External Affairs. Much of the aid consisted of equipment and structural materials produced in Canadian factories and mills and technical advisors to guide the construction of the new society. At the early stage little needed to be provided in educational support, because South Asia was well supplied with institutions of higher education. But when in the late 1950s and early 1960s the aid program was extended to Commonwealth Africa, Francophone Africa, and the Caribbean, while the main industrialization program continued the demands for educational support became clamant.

By this time the interdepartmental team had been given some structure and a name. The External Aid Office (EAO) had four divisions responsible for capital assistance, technical assistance through the provision of Canadian experts, a training division that opened places in Canadian universities to students from developing countries, and an education division responsible for supplying Canadian teachers for schools in Anglophone and Francophone Africa.

Strangely enough, all four divisions were involved in a very active educational program during the 1950s and into the 1960s. It was a period when the building of schools, vocational training institutes, and university buildings and extensions were called for. These activities came under the capital assistance division. For technical assistance, experts from Canadian universities were very much in demand and EAO representatives made the rounds of engineering faculties, agricultural faculties, and departments of economics like weekend shoppers in a supermarket. The admission of foreign students to Canadian institutions was handled quite separately from the recruitment, dispatch, and maintenance of teachers overseas. It didn't seem to occur to the Office that the building of an educational system was an integrated process and that there was an intimate relationship along the chain from the architect to the newly trained teacher, not to mention the users of the school and the drafters of the curricula.

Meanwhile, important changes in the international system and in the philosophy of development — the two were related — were taking place and were to affect the Canadian aid policy. In the first place, the process of decolonization quickened; at one stroke de Gaulle dissolved the French colonial empire in a speech at Brazzaville. This had the effect of creating a majority of developing countries in the membership of the United Nations. Their united vote called, in the first place, for a speedy end to the remaining colonial regimes, and then for an international meeting on the relationship between international trade and development. At that

conference held in 1964, a group of 77 developing nations showed remarkable unanimity in calling for structural changes in the international order to bring about a more equitable distribution of resources as well as greatly increased development assistance from the rich countries.

About this time, and coming to a climax at the end of the 60s, which President Kennedy had christened the "Development Decade," it was generally recognized that the vaunted technological approach to development did not work. National GNP might be increased somewhat. Certain urban groups close to the growing industrial and commercial centres might enjoy improved status. But the great majority of the poor, whether in the urban areas or in the slums of the cities, were no better off. A large international "Crisis in Planning Conference" held at the Institute of Development Studies at Sussex University decided that economic goals were not enough: consideration had to be given to actual needs of people, to social goals of development. More than that, it came more and more to be believed that people in developing countries, from village to national level, should have a large say in the making and implementing of development policy. Some of these conclusions were reflected in the report of the Pearson Commission, prepared for the World Bank and issued in 1969, the same year as the Sussex conference.

A foreign policy review, issued by the Government of Canada in 1970, reflected some serious heart-searching in the volume dealing with international development. It said:

> The people of these countries have accepted the primary responsibility for their own development and provide most of the resources required. They must set their own economic and social objectives, chart the main direction and dynamics of their growth, and accept the economic sacrifices required. Development assistance can provide the extra margin of support that will enable their sacrifices to be tolerable, and that will supplement their own resources with particular skills, experience, equipment, and materials that are limited within their own economies but are essential to the continuation of their development programs.

It is not surprising that a serious examination of Canada's foreign aid policy should coincide with a decision to regroup into a more compact but at the same time more responsive structure in Canada's development aid organization. In the late 60s, CIDA came into existence. In the first place, it got away from the sectoral divisions of the External Aid Office, establishing the Agency to permit concentration on regional and country programs — Asia, Africa, Commonwealth Africa, Francophone Africa, and Latin America and the Caribbean. Three operational divisions administer the programs — Bilateral, Multilateral, and Special Programs.

The Bilateral Branch accounts for the largest share of the program budget, 55%. Countries of concentration are selected on the basis of certain criteria suggested in the foreign policy review — potentiality for development, relevance, and availability of Canadian resources. The poorest countries receive high priority. The Multilateral Branch looks after funding programs executed by international agencies, mainly, but not exclusively, belonging to the United Nations family, on which Canada is represented. While programs under the UNDP, the World Bank, and the International Development Association (IDA) are determined by their governing bodies, there are a number of more specialized international programs, as we have seen, to which an individual country has the option of making a contribution. The Multilateral Branch is responsible for 37% of CIDA's budget.

The Special Programs Branch made a modest beginning in 1968 as a division concerned in giving support to Canadian NGOs committed to programs or projects in cooperation for development. In the decade of the 1970s, the division expanded rapidly with international as well as Canadian NGOs applying for and receiving support on a matching basis. The division was promoted to the status of a Branch. Quite recently it established the Institutional Cooperation and Development Services Division to finance linkages between Canadian universities and universities in Third World countries. In fact, other institutions concerned with development cooperation are eligible for CIDA support. CIDA had been stretching the definition of an NGO and waving some of the matching requirement to fund university linkages for some time; now the establishment of the Institutional Cooperation and Development Services made the operation legitimate, brought about a new definition of criteria and priorities and generally added an important element to university support. It should be noted as well that much of the NGO activity, perhaps 50%, was directed toward some form of education and usually in the neglected rural and village level.

There are two other branches that, to use old-fashioned terms, play a "staff" rather than a "line" role. These are the Policy Branch and the

Resources Branch. The Policy Branch, as its name implies, is concerned with the necessary adaptation of CIDA policy to changing needs and situations and also has an active interest in the evaluation of CIDA's ongoing programs. The Resources Branch might be regarded as a carry-over from the days when the External Aid Office was divided along sectoral lines. In fact, today it has a key role as the emphasis shifts to social and away from purely economic development and concerns itself with human goals involving education, health, human habitations, and communications — all sections of the Resources Branch alongside of the infrastructural and engineering sections. In the case of education, while it is credited with having concern for the educational aspects of every program or project sponsored by the Agency, it tends to be sought out when the program or project bears a recognizable educational label — a technical training school, a teachers' training institute, some educational project in an integrated rural development program. But when it is a project with heavy infrastructural content the resource section called upon will be engineering, and the educational consultant will be brought in at a later stage to give advice on certain peripheral training or maintenance aspects. Too rarely is it considered that the chief considerations in building a dam are human considerations and not considerations centred on cement and steel and bedrock and hydrology. For a dam to irrigate cropland is also a displacer of people and a transformer of society, opening up possibilities of improved health and nutrition and sanitation and way of life, but only if the people who are affected become participants in the process of transformation. This suggests that at the very beginning the counsel of the education section — and perhaps also the health and population section, the human settlements section, the social development section, and the communications section — should be sought. Beyond them, and in cooperation with them, the full participation of the local authorities in those same areas of social development is needed because, after all, it is their project. In this context the building of the dam takes on enhanced human significance.

Such an approach is not too far out of line with a new strategy announced by CIDA in the mid-1970s. Important international developments had produced basic changes in relations between what had come to be known as the North and the South. First came the sudden demonstration of the power of the Organization of Petroleum Exporting Countries (OPEC) group in the oil crisis of 1973. Then came the not unrelated demands of the enlarged Group of 77 for a restructured international economic community to introduce a measure of equity into a divided world. This demand became articulate and specific in two Special Sessions of the U.N. General Assembly in 1974 and 1975. The immediate result was increased polarization between the rich and poor countries. But more careful reflection brought a recognition of the justice of the claims of the poor countries on the part of the developed countries. Canada's Prime Minister was one of those who came out strongly in favour of a combined effort to achieve a New International Economic Order and played an important role in producing a measure of consensus in a meeting of Commonwealth Heads of Government just prior to the critical U.N. Special Session in 1975. At about the same time, CIDA produced its "Strategy for International Development Cooperation 1975–1980."

The document is no doubt a familiar one to those who have been following the evolution of development policy. But I have found it worthy of more careful study as an almost autobiographical account of a dawning awareness of a world community within which a realistic development cooperation policy must be formulated.

We start with where we came from:

> The evidence is overwhelming that in the 1960s despite the achievement of an overall 5 per cent growth rate by the developing countries, negligible per capita income gains resulted for those living in the most desperate poverty.

Now a recognition of the emergent world community:

> The viability of an increasingly interdependent world order rests on the creation of an international economic system which will provide a more equitable distribution of resources and opportunities for all people.

Then a recognition that within that global system the developing countries are responsible for setting the goals and designing the programs for their economic and social development so that the majority of their people may enjoy and participate in the achievement of a better life. Canada's obligation and opportunity is to support those efforts:

> The objective of the Canadian development assistance program is to support the efforts of the developing countries in fostering their economic growth and the evolution of their social systems in a way that will produce a wide distribution of the benefits of development among the population of these countries, enhance the quality of life and improve the capacity of all sectors of their population to participate in national development efforts.

Finally, within this context, there is the recognition of the central goals of development, the human goals, and the need to lend support to the struggle against those conditions that keep millions prisoners of poverty and ignorance:

> The Canadian International Development Agency will focus its assistance to a greater extent on the most crucial aspects or problems of development — food production and distribution; rural development; education and training; public health and demography; and shelter and energy.

The practice of CIDA in the last half of the decade of the 1980s reflected in considerable measure the guidelines set forth in the "Strategy." The Bilateral Branch put considerable emphasis on infrastructural projects designed to promote rural development. Food aid in the form of surplus wheat alleviated famine conditions occasioned by drought in many countries of Asia and Africa. The IDRC more than fulfilled the criteria set by the "Strategy": that the research and innovation be directed to solutions of major world problems of food and rural development, training and basic educational needs, health and population planning, shelter and energy; that supported activities strengthen the capabilities of developing countries for advancing their own indigenous research and innovation; and that supported activities have an impact beyond one country or region.

But by far the greatest recognition of the new priority to be accorded the human goals of development was evident in the activities and expanding role of the Special Programs Branch. We have already noted the significance of this development, beginning with the involvement of Canadian NGOs in programs and projects closely related to basic human needs and closely linked with the activities of social and educational organizations in developing countries at the local or village level. As we noted, the activities were supported by matching grants from CIDA; but overall, the contributions made by the NGOs in 1980/81 more than doubled the grant from CIDA. It would appear that we have something resembling the Swedish situation where the involvement of the people in international concern gives backing to government in its policy of assistance but also transcends it in a determination to participate as members of a world community.

The Institutional Cooperation and Development Services Division merits some additional attention. In 1968, with CIDA support, the Association of Universities and Colleges of Canada (AUCC) named Dr Norma Walmsley, a professor of political science, to conduct a survey of Canadian universities' resources national development. In her report, she recommended the establishment of a Council, not unlike Britain's Inter-University Council for Higher Education Overseas or the Dutch NUFFIC, to coordinate Canadian universities' policies on development and to be responsible for facilitating mutually satisfactory linkages between Canadian and Third World universities. Unfortunately, the recommendation was not acceptable either to CIDA or to AUCC and 10 years were to elapse before the idea was revived.

Meanwhile, students from developing countries received training in Canadian universities, Canadian universities served as banks of professional expertise on which CIDA could draw, and in its bilateral program CIDA funded some useful interuniversity and interinstitutional linkages; Guelph University and the University of Ghana in agricultural sciences; McGill and the University of Nairobi in medical training; University of Alberta and the Ministry of Education in Thailand in educational administration. Then a proposal originating in a committee on which CIDA, IDRC, and AUCC were represented was put forward for an International Development Office attached to AUCC, which bore a close resemblance to the recommendation of the Walmsley Report. This time it was accepted and the International Development Office was established to coordinate Canadian universities' interests in development, establish criteria for linked university projects, and act as a clearing house of information for Canadian and Third World universities seeking cooperative association in teaching, consultation, and research. As a counterpart, to work in close association with the International Development Office, CIDA set up the Institutional Cooperation and Development Services Division with identical criteria and priorities. At a conference held at York University in Toronto, Marcel Massé, President of CIDA said:

> Our first and most important reason for launching a new program of institutional cooperation was that we wanted to move away from the notion of aid with its confining 'donor-receiver' connotation to new relationships between Canada and the developing countries based on partnership and mutuality. The developing countries do not wish to be permanent recipients of aid or charity; they seek equality in their relations with other nations. We must be prepared to work with them as partners.

The approach is as realistic as it is humane. It confirms a central position in the Brandt Report that there is a mutual advantage to developed and developing nations in seeking out areas of cooperation within a single world community. It is an

approach quite in line with the "Strategy" and with subsequent policy objectives. Unfortunately, its general implementation is blocked by a serious constraint that goes back to early concepts of aid and to the close historical relationship between Canada's evolving policy of international cooperation and its origins in the Department of Industry Trade and Commerce. The constraining policy may be stated in simple terms: give all the help that you can to aid poor countries but remember that it must be Canadian aid. CIDA's 1979/80 Annual Report put it neatly:

> By regulation, 80 percent of the funds spent by CIDA on bilateral programs have to go into the Canadian economy for goods and services used on overseas projects.

Tied aid was condemned by the Pearson Report, and in the "Strategy" there were prayerful and somewhat guilty hopes that it might be reduced, because it was quite incompatible with the affirmation that development policy was made in and by developing countries. Moreover, because aid tied in such large measure to the products of Canada's factories and mills and to Canadian technocratic direction tends to be concentrated on the building of industrial infrastructure, social and human goals are apt to be pushed to one side. This can be true even in the rural sector, as we have seen. Within the context of this study, it is impossible not to recall that with Sweden's annual development assistance allocation in excess of 1% GNP, tied aid in the fiscal year, 1981/82 remains at 14.8% of the total aid budget, 22% of the bilateral budget.

It would appear to be consistent with CIDA's present direction of policy to liberate itself from this quite unnecessary constraint. The technocratic temptation would of course still remain. There is a bureaucratic inertia that resists change, holds to familiar patterns, and rejoices in monuments of steel and concrete with a real or imaginary Canadian flag flying on top. But there is also a momentum and dynamic in the involvement of people, seeking goals they have set with others, subjects not objects in the development process. Even in an international development agency one observes a dialectic between the technocrat and the humanist.

The most recent change in CIDA policy, and to some extent structure, has been the adoption of the "country focus." This carries into actual design and planning a principle that has been implicit, at least in declaratory form, in CIDA policy since the publication of the "Strategy." It means that the policy to be followed in any country must be related to priority needs, must be consistent within itself, and must call for integrated action on the part of all sections of CIDA that may be involved. As Marcel Massé also stated in the speech made at York University in Toronto: "This approach, which will emphasize the developing country as the centre of all our efforts, should help to ensure that all CIDA assistance to a particular country be complementary and mutually reinforcing."

In the context of our earlier discussion, this means that the technocrat must effect a reconciliation with the humanist, the humanist with the technocrat. But because the evolution of CIDA policy has been toward the assertion of the priority of human goals in development strategy and participation, technocracy must go hand in hand with social development, institution building and education. This opens the way to a much wider range of cooperation. Marcel Massé continues:

> One of the main reasons why we are moving towards this country focus approach in CIDA is to enable us to tap the creativity as well as the expertise and capability which our universities possess in such abundance. In the past our bilateral, government-to-government relationships have been confined mainly to large-scale, capital-intensive projects between national governments, implemented through contracts with firms, large institutions and the like. I am anxious that we should diversify our capacity to respond to the development needs of a country and, in this process, cultivate a wide range of relationships with room for many types of organizations and institutions. In this way I believe we can respond more flexibly, swiftly and effectively to development needs.

The budget of CIDA is increasing year by year and will continue to do so. The proportion of that budget devoted to the support of educational programs in developing countries is also increasing. But the support of education does not depend as much on resources as on attitudes and priorities. What is more important in estimating CIDA's future policy on educational support is where it is placing human goals in the strategy of cooperation for development. Recent trends are encouraging.

The International Development Research Centre (IDRC)

Prime Minister Lester B. Pearson advanced the original idea for IDRC in 1967, Canada's centennial year, in an address before the Canadian Political Science Association when he explored the need for "concentrating more attention and resources on applying the latest technology to the solution of man's economic and social problems on a global basis." At about the same time, Maurice

Strong, President of CIDA, was exploring with some associates the means of strengthening the research capacity of developing countries as a key factor in their progress. The two men met and planning began on the design of an institution that would flesh out and eventually bring to realization the two closely related ideas. A report was drawn up by a steering committee and submitted to cabinet, now headed by Pierre Elliott Trudeau, in September 1968, and the proposal for establishing the Centre appeared in the throne speech the following month.

The Act establishing the IDRC contained the following terms of reference:

> The objects of the Centre are to initiate, encourage, support and conduct research into the problems of the developing regions of the world and into the means of applying and adapting scientific, technical and other knowledge to the economic and social advancement of those regions, and, in carrying out these objects (a) to enlist the talents of natural and social scientists and technologists of Canada and other countries; (b) to assist the developing regions to build up the research capabilities, the innovative skills and the institutions to solve their problems; (c) to encourage generally the coordination of international development research; and (d) to foster cooperation in research on development problems between the developed and developing regions for their mutual benefit.

A unique feature of the new Centre that contributed greatly to its achievements and reputation was that although it was fully funded by the Government of Canada, its operations were directed by an international Board of Governors of 21, 10 of whom were Canadians, 10 non-Canadians, with a Canadian chairman. Of the non-Canadians, it became the practice that at least six would be appointed from developing countries. The first President of IDRC was Dr David Hopper, an internationally respected agricultural economist who had served for many years in India under the Rockefeller and Ford Foundations' research programs in the field of high-yield wheat and rice. The first Chairman of the Board of Governors was Mr Lester B. Pearson.

The Centre sponsors research under four operational divisions: Agriculture, Food and Nutrition Sciences; Social Sciences; Health Sciences; and Information Sciences. There is also a Communications Division responsible for publication of some of the research findings sponsored by the Centre and reports on the broad range of Centre activities. From the beginning the Centre has offered support for researchers in developing countries on projects and programs with a close relationship to economic and social development on priorities established by them. To bring the work of the Centre closer to the needs and research resources in the Third World, the IDRC has established five regional offices in Singapore, Dakar, Nairobi, Bogota, and Cairo.

At first glance it might appear that a Centre devoted to the funding of development research would have little significance as a sponsor of educational development. But from the beginning the IDRC has focused its main concern on the second objective in its terms of reference: "to assist the developing regions to build up the research capabilities, the innovative skills and the institutions to solve their problems." This is essentially an educational support activity, closely related to the support being given to universities and other institutions of higher learning that will make an ongoing contribution to the scientific community in the Third World.

In some cases the educational contribution has a direct linkage with a research project, as when the results of research efforts in food production must be made available to farmers working their fields. Or, as in the case of a rural development project in Sri Lanka, it is linked to the organization of a training program in the Faculty of Agriculture in one of the universities. Or again, in the rural development project in association with the Instituto Colombiano Agropecuario (ICA) in Colombia, the project team learns from the farmers about the biophysical environment within which they have carried out their agricultural production for centuries. Later the farmers can learn from the project team, not only about improved methods of cultivation but also about nutrition, housing, clothing, and home food production that will improve the standard of living of their families.

In some of the activities under the Health Sciences Division, experiences in developing technology for an improved rural water supply opened the way to a broad range of social education in sanitation, basic health care, and maintenance necessary if pure water were to meet people's basic needs. The activities of the Information Sciences Division are obviously strengthening educational infrastructure by contributing to the building of information networks in regions where access to current scientific literature and knowledge is extremely difficult and libraries are scarce. The Division is unable to provide training for librarians unless it is specifically identified as a requirement for infrastructural development. But it can and does give support to cooperative arrangements among librarians and libraries to maximize their resources. The Centre's own library is run by the Information Sciences Division and its use is not confined to the

Centre's staff but is a major information source for the Canadian development community.

One of the important contributions made in recent years to community development education has been made by the magazine "Famille et Développement." It came into existence as a result of the recommendation of a seminar on family health problems held in Bamako, Mali, in April 1973. With financial support from IDRC the first regular issue appeared in January 1975 and has met with widespread and enthusiastic response. The magazine, which is attractively produced by any standard, deals with every aspect of family economy and well-being — hygiene, family planning, safety of mother and child, education and rural schools, and rural development and obstacles to development such as the Third World arms race. It is particularly directed at a group of people close to where the majority of people are living — teachers, nurses, midwives, technical health officers, and so on. To reach the group for which it is intended IDRC contributed some CA$900 000 during its first 5 years. In June 1978 "Famille et Développement" was taken over by the Association africaine d'éducation pour le développement (ASAFED) and receives support from a number of international agencies including UNFPA, the Ford Foundation, Actions de Carême (Switzerland), Coopération technique suisse, and Swedish SIDA.

Support for educational research is one of the major interests of the Social Sciences Division. The research covers a wide range of educational subjects: classroom environment and student achievement in Thailand, urban preschool environment in Guatemala, effectiveness of primary education in Tanzania, the status of primary school teachers in Egypt, women's participation in community organizations in Peru, and a comparative study of the people's schools in the Philippines. Among larger projects, it has continued to support the work of the Advisory Committee for Educational Research. The education program of the Division was budgeted at CA$1.75 million or 20% of the divisional total for 1981–82. By 1984–85 it should amount to CA$2.6 million.

The Fellowship Program of the IDRC has been designed to assist scholars and researchers who wish to upgrade their competence in their fields of specialization to render them more effective in their contribution to development cooperation. Until recently, scholars from both the Third World and Canada have been eligible for awards. It has now been decided to increase very significantly the support for researchers from developing countries and confine Canadian support to young researchers at present attached to a university or research institute, so that they may spend 1 or 2 years working in a research institute in a developing country.

In its support of Third World scholars, the Fellowship Program will give more emphasis to training in areas of concentration associated with the work of the operational divisions. This may mean support for training directly related to the preparation, implementation, and follow-up work linked to a project within the responsibility of a single division. Or it may mean scholarship support for researchers and professionals in the broad fields of interest of the divisions and in regions where the need for professionally trained people is acute. In addition, in close association with the divisions, the Fellowship Program will introduce a number of group training courses, either in a developing country or in Canada. A Centre report states that "when organized regionally. . .they build up the teaching strengths of the institutions in developing countries and they create a network among the researcher trainees."

The Pearson Fellowships are designed for young public servants in developing countries who are given the opportunity of improving their managerial and professional skills by being placed in positions in government, industry, universities or research centres in Canada. The Fellowship Program accounts for some 6% of the Centre budget. If the IDRC budget increases as expected, the Fellowship Program in the next 5 years will increase from about CA$2.5 million to CA$6 million.

The Communications Division of IDRC also makes its contribution to education — in the Third World and in Canada. The publication of reports and monographs related to research supported by the Centre adds to the store of knowledge relevant to the urgent needs of people and societies in developing regions. For the people of Canada — the children in the schools, the members of NGOs, churches, and trade unions — the publications of IDRC open up new options for involvement in international cooperation and development.

The latest and very promising addition to IDRC's roster is a unit known as the Cooperative Programs. It was created to "promote research collaboration between groups in Canada and those in the developing world, in the execution of projects that address some problems of Third World development." A more comprehensive goal of the program is to strengthen the global community of scientists and scholars through common efforts and improved channels of communication and to influence the direction of Canadian research toward Third World concerns.

In a sense, the Cooperative Programs Unit is IDRC's counterpart to CIDA's Institutional Cooperation and Development Services Division. To a large degree the background is the same. But in addition, IDRC, through the initiatives of its then senior vice-president, Dr Louis Berlinguet, took an active role in the preparatory work for the United Nations Conference on Science and Technology for Development (UNCSTD), which was held in Vienna in the summer of 1979. Dr Berlinguet served on the Advisory Committee of scientists that held several meetings prior to the conference and, in collaboration with the Ministry of State for Science and Technology (MOSST), contributed to the mobilization of Canadian scientific interest. As a result, at Vienna the head of Canada's delegation announced that Canada would contribute CA$12 million a year to the goals of UNCSTD through sponsoring scientific cooperation and that IDRC would be responsible for supervising the expenditure.

The Cooperative Programs Unit is concerned with supporting research linkages between universities and research institutions in Canada and institutions in developing countries that will result in strengthening the scientific capability of the countries involved. Specific criteria in accepting projects would be the priority attached to the project by the Third World institutions, the commitment of both institutions, the scientific worth of the project and the special qualification of the Canadian university for being a partner in the research. Projects within the scope of any of IDRC's operational divisions will be administered by the appropriate division. Projects outside of the field of interest of any of the divisions will be administered under the Cooperative Programs.

Funds available for the current year amount to CA$2 million, divided equally between the divisions and the Cooperative Programs. If IDRC's budget increases in proportion to the projected increase in Canada's development cooperation budget the grants for the Cooperation Programs will rise to CA$2.5 million, CA$5 million, and CA$10 million by 1984–85. That fiscal target will still be less than 0.5% of Canada's GNP, far short of the 1% promised at Vienna. But linked with CIDA's parallel contribution through its Institutional Cooperation and Development Services Division, and in close coordination with Canadian universities through the International Development Office, IDRC's Cooperative Programs can make a substantial contribution to higher education in the Third World. Moreover, there is good reason to hope that this kind of cooperation would be extended even more to similar programs in the Commonwealth, in international agencies, and in the like-minded countries that we have examined in this study, to the growing advantage of the emerging international community.

Commentaries

Victor Billeh *World Bank, Washington, D.C., USA.*

I extend my sincere thanks to the organizers of this meeting for their kind invitation to attend. This has given me a chance to meet distinguished representatives of education aid agencies and other colleagues from developing countries. Being an educator and not a financial analyst or economist, I benefited a great deal from the papers prepared for the meeting. The papers and the discussions gave me new insights into what factors will affect and direct educational change in the 80s and beyond. My comments, based on personal experiences and observations, are those of an educator from a developing country, who was a recipient of a grant from an aid agency and who had worked on education development in some countries in the Middle East.

The papers revealed various degrees of pessimism about prospects for education financing in the future. They also demonstrated variations among aid agencies and among developing countries. Although "financing for education" has always been a problem, it is now evident that the overall trend is a bit more on the pessimistic side. What is uncontestable is that there is now more skepticism about what education has achieved, more doubt (by both aid agencies and developing countries), about where (at what level) investments in education ought to be made, more awareness of the need for identifying major issues, and priorities in education within a realistic national strategy for development, more skepticism by developing countries about the ability of "foreign experts" to assess needs and propose solutions to persisting problems. That is partly why developing countries usually refrain from software support (technical assistance) and ask mainly for hardware support.

Gordon's paper reveals an important trend in the relationship between aid agencies and countries of the developing world: the gradual disappearance of the dichotomy of donor–recipient and the emergence of a relationship based on cooperation. Sweden, the Netherlands, UNICEF, and UNESCO set examples along these lines. A major constraint in the relationship between aid agencies and the developing countries is also due to the lack of understanding by developing countries of what a particular agency is willing to provide and the limitations of its support.

As the resources for education (both local and foreign) become more and more scarce, it becomes much more important at this time to place more emphasis on how to utilize available resources efficiently and not so much on how many resources are available. This raises an important issue: that of integration (coordination) of efforts of all involved. It would be naive to assume that a fragmented piecemeal approach for solving educational problems would be adequate. Education is a multidimensional, complex set of activities. What is needed, for the benefit of both agencies and countries, is integration at various levels.

Horizontal integration among the various sectors in a country is essential, as is an overall development plan relating education, agriculture, health, transport, energy, rural development, etc. Although most countries develop 5-year plans, these plans are often unrealistic because they are based on opinions and subjective judgments and not on hard data or economic analysis. In many countries, people working in one sector rarely know what is being planned or implemented in another sector that could have considerable consequences for that sector. It is, therefore, important to ascertain the degree of integration among various sectors before an investment (local or foreign) is made. Policies (of the developing countries and of aid agencies) must call for an overall development strategy and for integrated action on the part of all concerned. The design of educational assistance programs must be in harmony with the overall development plans.

Vertical integration within the education sector is another important aspect. Identification of the strengths and weaknesses of the various elements of the sector (elementary, secondary, higher education, basic education, technical/vocational, etc.) is a prerequisite process to any subsequent investment plan. Aid agencies support in this process could be very instrumental. Sector studies (surveys) could be carried out in a collaborative effort between local and foreign experts with local experts playing a

more prominent role. Sector or subsector studies usually result in raising the most important issues in the system and in ordering priorities.

Such information is not only useful for developing-country governments but to aid agencies as well. A number of aid agencies can benefit from the same study. Each aid agency can design its assistance program in such a way as to contribute to the overall strategy of the country, to complement the assistance program of other aid agencies, and to avoid the often unnecessary duplication. Often some aid agencies respond to fragmented and isolated requests from governments without examining how these requests fit into the overall system and without ascertaining that they form an integral part of the educational development plan. Some aid agencies do not often coordinate their assistance programs with those of other agencies. This is not to suggest, however, that such coordination is the responsibility of the agencies. The developing-country governments have the major responsibility of drawing the skeleton of an overall assistance program. But because of differences between aid agencies in policies, procedures, and scope, and because many developing countries do not know of the policies and the limitations of aid agencies, it is often disappointing for developing countries (who can draw an overall assistance program) to see that their objectives are not achieved as originally planned. More coordination and communication among aid agencies can be very beneficial. A longitudinal (long-term) assistance program for each agency can lead to better results.

One of the important contributions of aid agencies to developing countries is to assist in developing a critical mass of local expertise capable of conducting policy analysis studies. At a time when resources for education are more scarce, it is necessary to consider alternative policies and practices. A change in policy can often save a country from making wrong investments. Policy studies can assist governments in taking a clear position on dilemmas such as quantitative expansion versus qualitative improvement, expansion of primary versus other levels of education, class size, teacher salaries, private versus public education, length of compulsory cycle, etc. Aid agencies can also provide technical assistance and basic support needed to introduce educational innovations that would lead to cost reduction and have been demonstrated as cost effective. They can support pilot project models and feasibility studies. Such involvement should be perceived as a first step in an overall plan of action. Although many educational innovations in developing countries have been triggered by aid agencies, examples of failures are not rare. Follow-up activities and long-term involvement can guard against wasted investment.

James G. Karuga, *Ministry of Finance, Nairobi, Kenya.*

There are fears that expenditure on education is threatened as a result of the worsening economic conditions in both the developed and developing countries. In the developed countries of the North, there is a real disenchantment with spending public funds on education, and certain countries have made drastic cuts in the financing of education. The disenchantment with education in the developed world arises out of the realization that perhaps educational expenditure does not yield, at least for the present, as high returns as it did in the early years of scientific growth. This view of education has been reflected by a hardening of attitudes by governments toward assistance to educational programs in the Third World.

The situation in the Third World, however, is different. Although the economic circumstances facing our nations are extremely adverse, there are forces making for continued pressures on increasing educational budgets. But before I outline what I believe to be the real forces behind the education lobby in developing countries, I would like to make a few observations on donor attitudes toward assistance to education.

First, in situations of economic recession, all national governments are forced to look more critically at the allocation of their funds. Assistance to education has to be weighed against assistance to other sectors that hold more direct industrial benefits to the donor country. In this regard, education assistance is not as capital intensive and, therefore, profitable as say assistance to the energy sector, which will almost certainly create more jobs in the donor country than assistance to education. To this extent, therefore, donors have a role to play in defending assistance to education. That case can be made on many grounds as demonstrated in the paper prepared by Lewin et al. (this volume). It is important, however, to select the right "slogan" or "metaphor" for doing this.

Second, donor agencies have also not properly articulated their own objectives in assistance to education. Often there is a proliferation of donors and different approaches to problems of education, with different emphases on various educational activities. This lack of coordination has, at times, resulted in confusion at the project implementation stage. Worse still is the feeling in developing countries that their schools are being used as

experimental laboratories, which has been engendered by the persistence and pushing of certain donor pet projects. It is important, therefore, that donor activities harmonize with the priorities of the developing countries and not the other way around.

Third, it is important in designing responses to the crisis of financing education to distinguish between short-term and long-term forces making for changes in donor attitudes. How strongly embedded the present skepticism about education spending is should be properly assessed before any long-term strategies are designed and programs defined. In the case of Kenya, we recognize the hard reality of the present recession and the prospects for continued economic hardships in the medium term. Our economic growth has been almost stagnant in the last few years, and our balance of payments situation remains weak. To this extent, education spending, like all other public expenditure, cannot be expected or allowed to continue to grow at the earlier buoyant rates. There is, therefore, a deliberate attempt to cut back on all public expenditure, including education. Indeed, spending on education has been held back from 33% of recurrent budget in 1979 to about 30% in the current financial year.

In achieving this cut, the Government of Kenya has followed a strategy of holding back on new capital expenditure and passing the costs of such items of expenditure as the provision of simple structures and teachers' houses back to the community. Kenya is unique in this respect in that it has a strong tradition of community participation in sharing the budgetary costs of education, witness the Harambee school movement, which has provided more secondary school places than the direct government machinery.

The Government of Kenya is also considering pursuing a policy of sharing costs of higher education with the beneficiaries to lighten the burden on the Exchequer. These and other short-term measures are designed to sustain real levels of expenditure on education at acceptable levels, because we believe that the task of providing education to the nation is not yet complete. Indeed, as I indicated earlier, there are pressures that call for more expenditure on education and not less.

In the first instance, labour development goals are still not satisfactorily achieved. Gaps exist in many specialized areas and public expenditure on this must rise if we are to meet our plan targets. To the extent that donor activities give less preference now for this objective, governments will be forced to work out mechanisms for filling the skill gaps still prevalent in the high-level skill profile. The withdrawal of donors from higher education, which is foreign-exchange intensive, means that investments in this area by developing countries might have to wait until more buoyant balance of payments situations arise. In the meantime, a challenge to donors exists to come up with short-term programs that will enable developing countries to keep the momentum in this area. This might, in my view, call for the strategies of the 1960s of sharing facilities in developed countries for training of specialists in certain fields, particularly those areas that are crucial to the training of trainers.

Second, goals of regional equity still remain unachieved at the basic primary education level, and sex inequalities still persist in all levels of higher education in Kenya. To achieve the goal of social equity, it will be necessary to continue increasing spending for certain areas and on certain levels of higher education. It is the expectation of the Kenyan government that the introduction of charges for higher education in certain areas may relieve pressure on the Exchequer such that the government may be able to shift emphasis to these other disadvantaged areas.

Third, the Government of Kenya has responded by reallocating resources to activities that increase the marginal returns from existing investments. It is a feature of education (as indeed of many other sectors) that capacity utilization in plant and equipment remains very low. Investments in certain areas may be necessary to remove the bottlenecks to increased capacity utilization that exist in certain institutions.

Fourth, Kenya is concerned that the quality of education is improved. Again, to achieve this objective, it will be necessary to make investment in training, curriculum development, and utilization of local teaching materials in an innovative way. Finally, the Government of Kenya is concerned that there are improvements in efficiency of the labour force in all sectors, and to this end, it is the goal of the government to adopt an integrated approach in education, health, agricultural, and cultural activities. How donors can assist countries like Kenya that are experiencing heavy economic stress to adjust their strategies as outlined above remains the task of this conference in the next few days.

Sippanondha Ketudat, *Chulalangkorn University, Bangkok, Thailand.*

With an increasing social demand and human resources requirement for all levels and types of education, developing-country governments are morally, developmentally, and politically commit-

ted to providing education to their population. We learn in many ways from our own experience, our parents, forefathers, village, community, and nature. We are, therefore, morally committed to teach our sons and daughters. The old learning from their peers and learning from the young have a duty to relate their experience to the young so that the young can live peacefully, contentedly in harmony with others and the environment.

As society progresses, the answer to the question of how it all comes about is clear. Development is a process of enabling people to obtain ideals and aspirations that they could not achieve before — that is to learn and apply information, attitudes, values, and skills previously unavailable to them (Bell et al. 1978). But learning is not enough by itself. Most aspects of development require capital investment and scientific and technical processes as well as raw materials. But capital and scientific and technical processes and materials are inert without human knowledge and effort. People are, therefore, central to development. The fundamental concept of development has a dynamic implication with temporal dimensions. Development implies an individual and social desired change from one state of affairs to another. For the dynamic change to be smooth and nondisruptive, it must be generally accepted by the people. This acceptance should not be passive but should involve active participation by the populace in the decision-making process and in the input of ideas. This means that the change must be in consonant with the social, economic, political, and cultural environment; otherwise, undesirable catastrophies may result and, thereby, developmental goals may not be achieved at all. Development requires patience. A simple rationale for education in the political arena is that one can not build a society or a nation with illiterates. Furthermore, constituencies unanimously want education.

Under many constraints, namely population increase, competition for financing other development activities and national security, and the difficult period of world economic crises and economic adjustments in the 80s, a developing country cannot undertake the difficult and arduous task of education provision effectively alone, international cooperation in a new dimension is absolutely necessary. The roles and guidelines of various parties, namely the developing and the developed countries and the international agency, and their cooperation will be briefly presented. The list is not extensive, but key activities and directions will be outlined. It is believed that these issues would trigger other activities in such a way that the gap between financial and other resources would be closer to meet the needs and aspirations of developing societies.

The LDC's Roles

Readjustment of Allocation for Different Levels and Types of Education

It has been shown intuitively and analytically that basic primary education is fundamental to development, particularly rural development. First priority on extensive and improved quality primary education is a must. This is by no means easy, but through extensive research and development over the past decades, many developing countries have progressed significantly. Learning how to cope with these difficult developmental problems from among developing countries and with developed countries and international agencies as catalysts has proved beneficial.

Nonformal education, particularly the functional literacy and the education and training component, integrated into development projects is the key to success. Furthermore, these types of activities provide permanent behavioural change and skill development attitudes in human resources of the country.

As the rate of increase of population slows down, the demographic shift in school-age groups will move from the primary to secondary ones. The saving from primary education financing would provide an additional source for the funding of secondary education. A proper political sense of balance is the key to reallocation. Diversification of various types of postsecondary education in general reduces unit cost for higher education and takes political pressure off the government in providing seats for those who aspire to higher education. Multigrade training and vocational and technical education with participation and involvement of prospective employers do reduce costs and political tensions. Continuous monitoring, evaluation, and planning on allocation keeping all political forces informed will, to a certain extent, reduce conflicts and, thereby, keep education moving ahead.

Appropriate Innovations

Innovations are not always expensive. Individualized computerized program learning is only viable for developed countries. Innovation based on existing infrastructure can be quite inexpensive. For example, in Thailand where there is a good postal service, printed materials with properly phased tutorial classes utilizing a nearby centre in a secondary school during weekends provides an

inexpensive means for open learning at the tertiary level. Another example is alternative annual admission of children of two age groups, 6 and 7 years old, to primary school is utilized in the school catchment area where the absolute number of school children decreases because of family planning. There are many innovations to save costs. Many have been analyzed and evaluated in the social and cultural context. Again, learning from developing countries is useful.

Development of Capacity for Analysis, Research, Development, and Planning

The key to quality, efficiency, equity, and effectiveness of education provision is the capacity for research and development both at the central and local levels. Techniques in macro- and microplanning are basic to cost saving. A continuous monitoring and evaluation component, properly built-in new innovative projects, as well as ongoing routine operation would increase efficiency and effectiveness.

Linking Research to Policy Development, Planning, and Implementation

The art and science of linking research to policy development, planning, and implementation ensures rationalism and effective practical change and appropriate innovation that can reduce cost. There are studies available that demonstrate how linkages can be built (Ketudat and Fry 1981).

The Developed Country's and the International Agency's Roles

Under heavy competition for financing education in relation to other activities in developing countries, the first priority of budget cutting is usually research and innovation on new projects in education. Developing countries are then left with either steady-state or more-of-the-same education. In such a case, problems will be more compounded for the future. Developed countries and international agencies should consider funding appropriate innovations and research under such conditions. To assist in building up capacity for analysis research and development, efforts should be made to stimulate and collaborate with developing-country personnel to carry out research in developing countries where possible. Over the past decade, there has been skepticism about education and international collaboration, some thought on educating the public and political constituencies for global interdependence would help strengthen developed-country governments in financing aid.

International Cooperation

Although rhetoric has been stated time and again about cooperation and interdependence, in practice international cooperation in education in most cases is still a donor–recipient relationship. Interventionism has been criticized in many cooperation projects. The key issue here is the process and style of operation. It should be "cooperation as equals."

Dialogues between developed and developing countries at various levels should be promoted. Such dialogues among policy people, executives, enlightened politicians, practitioners, and intellectuals of developed and developing countries would ensure a proper balance between the academic and technical know-how and the practicability and would alleviate interventionism on the one hand and overnationalism, chauvinistic education on the other. Such dialogues would also provide a floor for discussion on diagnosis, project design, and evaluation.

We can learn from teachers as well as from among peers. Learning from each other is just as beneficial as learning from developed countries in many cases. Promotion for setting up networks, both formal and informal, involving nearby developed and developing countries not only provides a ground for enriching educational development but, in the long run, understanding and peace.

Over the past decades, there have been many intra- and intercountry groups and cooperatives. Many regional (intercountry) organizations/institutions in education have been established. Developed countries and international agencies should keep many "windows" open for cooperation.

In conclusion, the key to the future direction of cooperation is the process and style of cooperation as equals. Be it between the north and the south, the east and the west, the know-how and the know-not of the informaticist and the noninformaticist, progress will be a reality if dialogues as equals are established.

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For similar reasons, but probably with different consequences, educational spending is a very controversial topic today, both in developed countries and in the Third World. After more than 20 years of major efforts to strengthen the formal education system, based on the premise that more education equals more development, academics, governments, and international cooperation agen-

cies are today confronted with great skepticism regarding the true impact of educational spending on the welfare of the people. This, together with current problems in the world economy and the individual difficulties faced by different countries, has led to a new situation, in which it is increasingly unlikely that more resources will be available for education. Paradoxically, these circumstances have occurred at a time when many countries, in spite of their efforts, have still not been able to achieve minimum levels of education.

Within this context of great uncertainty, studies such as those presented and discussed at this meeting are of major importance, because they not only contribute to achieving a clearer view of the impact of education on development, but they also provide elements on which to base future decisions in this field.

Many aspects pertaining to the subject of educational spending have been discussed and evaluated. However, for the purpose of making a few concrete remarks, we must identify those that are of greatest importance.

Undoubtedly, one of the major contributions arising from the discussion has been a realistic view of the role of education in terms of its true contribution to the development process. Based on an extensive review of available bibliographies, the papers presented by Lewin et al. (this volume) and by Carnoy et al. (this volume) note that there is sufficient empirical evidence to affirm that education has, indeed, contributed to the development of nations through its effects on agricultural production, health, nutrition, the birth rate, etc. Also, Lewin et al. (this volume) point out that today's disillusionment over the relationship between education and development is mainly the result of exaggerated expectations regarding the contributions that can be made by education to the process of change in different societies. There is no doubt that education alone cannot lead to change — as was believed in the 1960s — but is instead only one of the necessary elements. The problem, then, has not been a lack of results, but rather, unrealistic expectations.

Perhaps the developing nations can profit most from this conclusion. In the first place, it provides them with a clear argument that can be used to resist pressure to reduce public spending in this sector. In the second place, and perhaps even more important, in view of this statement regarding the true contribution of education, it becomes necessary to undertake a major review of spending on education at the various levels and its relationship with investments in other sectors. For donor agencies, the effect may be similar. Educational spending continues to be important, but if money is spent indiscriminately, it may not produce concrete results. Therefore, it is necessary to work with countries to pinpoint sectors, programs, and projects that generate development within this new reality. In general, both for the countries and for the agencies themselves, the relative scarcity of resources together with a more precise definition of education within the process of change, may be decisive factors in achieving higher levels of efficiency.

Another valuable element arising from the discussion, which can be inferred from the paper by Carnoy et al. (this volume), is a recognition of the importance of political factors in allocating resources to the education sector. Identification of a broad social demand for education in Third World countries, based on a concept of education that is more symbolic than realistic, allows us to understand the paradoxical situation in which many governments find themselves, because they must respond in some way to this pressure for the sake of maintaining a certain degree of political and social stability. At this point, the true hurdles that stand in the way of curbing spending on education, and that make it difficult to redirect spending toward the new concepts, become very clear. Also, once these obstacles have been identified, the academic world can make a significant contribution to the search for alternatives that will permit the demand for education to be kept within realistic levels and spending to be aimed at those sectors where it will have the most efficient impact.

The discussion of new ways to reduce educational spending in the article by Nelly Stromquist (this volume) is precisely in line with the need to make educational spending more profitable, in both economic and social terms. Also, her work identifies an aspect that is fundamental for the future of educational spending; i.e., the real contribution that families and society have been making to the development of primary education, a level that is supposedly financed to a great extent by the state.

The aspects mentioned above constitute a basic reference framework for the future development of various educational activities. New areas of research viewed as basic for continuing progress in examining the interrelationship between education and development have been pointed out and discussed. Also, certain guidelines have been identified that can help to direct educational policies, especially in Third World countries. Within these new aspects, possible fields of action for the different donor agencies have been identified.

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